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CONTENTS.

ORIGINAL COMMUNICATIONS:
The Importance of the Musculo-Fascial Plane in the Recto-Vaginal Septum. By J. W. Henson, M. D., F. A. C. S., Richmond, Va. 283
Intussusception—the Importance of an Early Diagnosis. By William P. McDowell, M. D., Norfolk, Va. 288
The Hospital and the Doctor of Today in Relation to Medicine of the Present and the Future. By Henry A. Christian, M. D., Boston, Mass. 293
A Plea for Cesarean Section With Better Obstetrics. By S. B. Moore, M. D., Alexandria, Va. 299
Some Disturbances of the Pituitary Body. By Frank H. Redwood, M. D., Norfolk, Va. 301
A Neglected Method of Treatment for Ulcerative Cystitis in the Female. By Alfred P. Jones, M. D., Roanoke, Va. 304
A Case of Eventration of the Diaphragm. By W. Allan, M. D., Charlotte, N. C. 305
A Brief Analysis of the Anatomical Diagnoses of 699 Autopsies of Patients Dying of Tuberculosis. By Wyndham B. Blanton, M. D., Richmond, Va. 307
Complete Abruptio Placentae in the Twenty-Ninth Week of Pregnancy; Manual Delivery; Recovery. By Virginius Harrison, M. D., Richmond, Va. 309
Complete Circumcision in Chancroid Beneath Tight Prepuce and Multiple Chancroids on Prepuce. By Samuel Newman, M. D., Danville, Va. 311
Indications For and Technic Of Caesarean Section. By M. J. Payne, M. D., F. A. C. S., Staunton, Va. 312
"Dr. Geo. Ross, Our Patriarch." By Thos. H. Hancock, M. D., Atlanta, Ga. 315
CLINICAL REPORTS:
Report of a Case of Mastoiditis, With Necrosis of the Bony Lamina Covering the Sigmoid Portion of the Lateral Sinus. By T. W. Edmunds, M. D., and G. B. Dudley, Jr., M. D., Danville, Va. 317
Three Cases of Pneumonia in Which Pneumococcic Antigen Was Used. By R. E. Mitchell, M. D., Richmond, Va. 317
Report of a Case of Fracture of the Pelvis With Autopsy Findings. By N. F. Rodman, M. D., Norfolk, Va. 318
MEDICAL EDUCATION 319
PUBLIC HEALTH 320
THE TRUTH ABOUT MEDICINE 321
PROCEEDINGS OF SOCIETIES 323
EDITORIAL 325
NEWS NOTES 327
OBITUARY RECORD 333

FOR MEDICAL SOCIETY AN NOUNCEMENTS SEE PAGE 8.

INDEX OF ADVERTISERS—Advertising Page 5.

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Original Communications

THE IMPORTANCE OF THE MUSCULO-FASCIAL PLANE IN THE RECTO-VAGINAL SEPTUM.*

By J. W. HENSON, M. D., F. A. C. S., Richmond, Va.
Associate Professor of Surgery, Medical College of Virginia; Surgeon to Memorial and Virginia Hospitals.

Physicians and surgeons of necessity have developed much patience. Nevertheless, there is so much literature on the anatomy and pathology of the structures concerned in the loss of support of the pelvic viscera in the female and on the question of the surgical procedures indicated to correct the results of the pathology, that one hesitates to write on a subject so much used and at times abused, fearing he may exhaust the much tried patience of hearers or readers. The writer's apology for reviving this subject is the possession of very strong convictions based on observations that were made possible by having been at one time a teacher of anatomy and by reason of having had the opportunity to make 3,000 or more pelvic examinations.

Some discussion of the anatomy and physiology of the structures concerned in the support of the uterus and bladder is essential to a clear conception of the etiology of ptosis of these organs and the means to be used for its relief, particularly as the object of this paper is to emphasize the importance of certain structures that are apparently being either ignored or little understood.

The pelvic fascia, a continuation of the iliac fascia, descends along the lateral wall of the true pelvis and splits along the course of a line drawn from the back of the pubis around the pelvic wall to the spine of the ischium.

The levator ani muscle arises from the back of the pubis and from the angle of division of the pelvic fascia and from the spine of the ischium. Note that confusion arises when the insertion of this muscle is considered. Most of the books on anatomy differ, and some differ widely in their description of the insertion, which argues strongly that dissections are not reliable in the case of a muscle which is as thin at its insertion as is this one and which blends with so many other structures.

The action of such a muscle is a better indication of its attachments. Gray's Anatomy describes the insertion of the muscle as follows, "the anterior fibres are inserted into the central tendon of the perineum after passing across the lateral aspect of the lower end of the vagina, the middle fibres pass along the anal portion of the rectum and are inserted into the anus, the posterior fibres are inserted into the tip of the coccyx and the median fibrous raphe from the coccyx to the rectum."

Campbell's Surgical Anatomy, while giving practically the same insertion for the middle and posterior fibres as given by Gray, differs very materially from the latter in the description of the insertion of the anterior fibres.

According to Campbell (and Deaver), the anterior fibres of the levator ani pass across the side of the lower end of the vagina and, turning inward, join with the fibres of the opposite muscle between the vagina and rectum. While this is nearer the truth than the description of Gray, I am convinced it is incomplete, to say the least, as I shall try to prove further on in this paper. The inner division of the pelvic fascia, called the levator ani fascia, covers the upper surface of the levator ani muscle, is continuous posteriorly with the thin fascia coming down over the sacrum and the coccygeus muscle and mesially passes between the rectum and vagina, also giving off a process or plane which passes over the vagina to the base and neck of the bladder.

The levatores ani and coccygei muscles with the layers of fascia above and below them (the anal fascia, a thin reflection from the pelvic fascia, lies below them) constitute the true pel-

* Read before the surgical section of the Medical Society of Virginia at its meeting October 28th to 31st, 1919.

XUM

vic diaphragm, the defect in this diaphragm in front between the levatores ani muscles being partially closed by the triangular ligament and the transversus perinei muscles. This set of muscles and fasciae is called by Halban and Tandler the "supporting apparatus."

Above the pelvic diaphragm and beneath the pelvic peritoneum, besides ordinary sub-peritoneal connective tissue, there are bands and sheets of fibrous tissue which, whether considered as condensed sub-peritoneal connective tissue or extensions of the pelvic fascia, are nevertheless ligaments. The most important of these are the pubo-cervical ligaments and the fascia between them, extending from the pubes backward beneath the base of the bladder to the cervix, the cardinal ligaments from the cervix to the lateral pelvic wall and the utero-sacral ligaments. This set of structures is called by E. Martin the "holding apparatus." Further description of these and the other ligaments of the uterus is not required in this paper because there have been in the last few years many papers in the leading journals portraying them very elaborately and emphasizing their importance as supports of the uterus and bladder. I have no quarrel with statements that they are very important supports for these viscera. I do take issue, however, with the view that they are the only essential supports.

Many surgeons, who pay no attention to the fascia in the operation for inguinal hernia and give every attention to the muscles, reverse that procedure entirely in dealing with ptosis of the female pelvic viscera, believing that, in correcting the tears or relaxations in the ligamentous or fascial supports, they have done all that is necessary. This is not in accordance with nature's provision. In every part of the body where support is needed, you will find this support provided by connective tissue, backed by muscles either directly or indirectly. The joints are all supported by muscles or tendons in addition to the ligaments. But for a tendon and aponeurotic expansions from muscles, that great joint, the knee, would be almost without support in front and at the anterior part of each lateral aspect. Any attempt to dislodge the head of the humerus from the glenoid cavity under normal conditions is met with resistance that can only be overcome by great force. But, in injury to the brachial plexus involving the nerve supply to all the muscles crossing the shoulder joint, the head of the humerus falls downward and, as time goes on, if the paralysis continues, it falls lower and lower, the ligaments stretching.

The long bones are not only enabled by the muscles to maintain the body erect but, as a matter of fact, the muscles surrounding a bone, when in a state of tension, actually reinforce its strength. Would the broad, coronary, and lateral ligaments, which are merely peritoneal reflections, be sufficient to hold the liver in position without the intra-abdominal tension? Would the gastro-hepatic omentum hold the stomach in position indefinitely without the intra-abdominal tension? What is chiefly responsible for intra-abdominal tension? The muscles. You can find men of twenty-five or thirty years of age who have sat at desks for ten years or more and who are pot-bellied, their intestines, small and large, being collected into a bulging mass at the lower abdomen. This is not due to a relaxation of fascia so much as relaxation of abdominal muscles. Put these men in military training and in a few months the front of the abdomen will be straight and firm and the intestines in place, a matter of muscular development and support, which has restored the intra-abdominal tension.

There is also an intra-pelvic tension,—the pressure from above being neutralized by the tonic contraction of the muscular part of the pelvic diaphragm. Furthermore, an unusual pressure coming from above on account of some extra contraction of the abdominal muscles is neutralized by active contraction of the muscular part of the pelvic diaphragm.

While I think Campbell is nearer correct in his description of the insertion of the anterior fibres of the levator ani muscle than any anatomist I know of, I believe the truth is that the anterior fibres of this muscle are inserted, a few into the central tendon of the perineum, and most of them into the recto-vaginal reflection of the pelvic fascia (continuation of the levator ani fascia), this insertion extending from the base of the triangular ligament up along the recto-vaginal fascia as far as two inches or more, thus forming a musculo-fascial plane in the recto-vaginal septum. This arrangement has an analogy in the tensor vagina femoris, which lies under the fascia lata and yet is attached to this fascia. It is easy to demonstrate the attachment and action of the anterior part of the levator ani muscle in the living, normal, nulliparous woman. Introdu-

cing the finger into the vagina (woman erect), you will find that the course of the posterior vaginal wall, for two inches or more, is upward and backward, approximately at an angle of 45° with the midline of the body and then curves backward, sometimes slightly upward, and finally positively upward to reach its attachment to the cervix uteri. For the first two inches or more, the posterior vaginal wall is firm and holds the finger snug up against the base of the bladder. If you press against the posterior wall here, you will find resistance. If you continue the pressure, the tissues will give to a certain limit. After pressing beyond a certain limit, you will feel your finger forced back against the base of the bladder. This can only be done by muscular contraction. Beyond the point at which the posterior vaginal wall curves backward, the tissues are not firm but loose and relaxed. The recto-vaginal fascia here is thin and unsupported by muscle.

FIG. 1.

A tear of the perineum, even if it goes to the sphincter ani, provided it does not go over three-fourths of an inch up the posterior vaginal wall, does not destroy the muscular support to the pelvic viscera. Let us by all means stop paying so much homage to the perineum and pay more attention to the integrity of the musculo-fascial plane in the recto-vaginal septum.

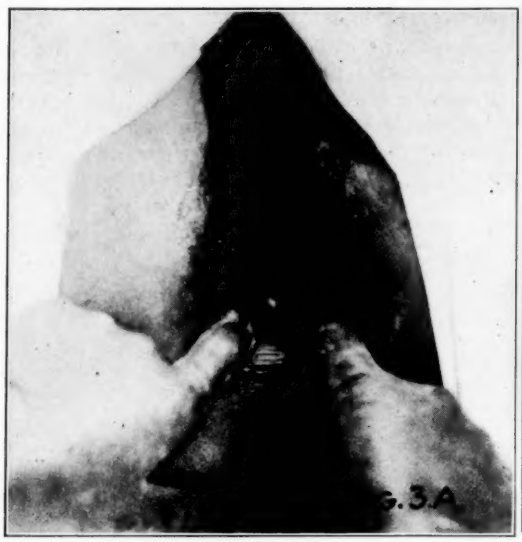
A glance at figure 1 will show that the bladder is supported not only by the fascia and ligaments under its base but by the musculo-fascial plane in the recto-vaginal septum. The

FIG. 2.A.

A nullipara. Perineum and recto-vaginal septum very much relaxed, as shown by the two examining fingers when introduced full length and pressed backward, making a wide space below the bladder.

2.B.

Same woman as in Figure 2-A. The two examining fingers have depressed the posterior vaginal wall and anterior rectal wall so far backward that the ends of the fingers make a bulge at the anus.



A multipara. Relaxation of perineum and lower end of recto-vaginal septum, the back part of the latter being still firm, as shown by the fact that, in pushing backward the two examining fingers, there is a wide gap between the fingers and the bladder in front, while, further back, the posterior vaginal wall can be seen still hugging the bladder.

Same woman as in Figure 3-A. In attempt to push the vagina and rectum backward to the limit shown in Figure 2-B, the fingers have slipped forward over the vaginal floor and are shown caught behind the perineum.

fundus and greater part of the body of the uterus, by resting against the bladder, receive the same support in addition to its own ligaments. The lower part of the uterus rests, in stress, on the upper part of the musculo-fascial plane of the recto-vaginal septum. It is true that the fibres of the levator ani, which are attached to and behind the rectum, by lifting this viscus, help to support the other pelvic viscera but, when the attachment of the anterior fibres of this muscle are torn or relaxed to the upper limit of their attachment, the muscular part of the pelvic diaphragm is so crippled that it cannot maintain the intrapelvic tension. When this support is gone, the direct fascial supports of the bladder and uterus will gradually stretch under the constant unrelieved strain.

Surgeons, arguing against the value of the support from the levatores ani muscles, say there are cases of prolapse of the uterus and bladder in nulliparous women. True enough. Show me such a case and I will show you that the musculo-fascial plane in the recto-vaginal septum is relaxed. For example, figures 2a and 2b illustrate a nulliparous woman in whom you can see that the musculo-fascial plane is relaxed more than that of the multiparous woman shown in figures 3a and 3b. The nulliparous woman (figures 2a and 2b) has also retroversion and prolapse of the uterus and some

A unipara. Perineum has been torn, the extent of the tear up the recto-vaginal septum being about 3/4 of an inch. Two examining fingers were introduced full length into the vagina and pressed firmly backward. Result, as shown in the cut, the musculo-fascial plane held the fingers firmly against the base of the bladder.

cystocele. The woman shown in figure 4 has borne a child, has a torn perineum, the tear going up the vagina about three-quarters of an inch, and yet the rest of the recto-vaginal septum is intact, doing its work, and there is no descent of the bladder or uterus.

The writer wishes no one to accept his views regarding the anatomy and physiology of the pelvic diaphragm without testing the soundness of these views by the method described above and illustrated in figures 2a, 2b, 3a, 3b, and 4.

In cases of cystocele or ptosis of the uterus, the appropriate plastic work should be done on the fascial supports of these viscera, of course, but such work should be supplemented by restoring the integrity of the musculo-fascial plane in the recto-vaginal septum, otherwise one need not expect permanent results.

Technique of the Operation.

The preceding discussion regarding the anterior fibres of the levator ani muscle and the recto-vaginal fascia (continuation of the levator ani fascia), practically indicates the technique. However, there are a few points that should be emphasized.

After exposing the parts by a perineal retractor, make a U-shaped incision at the muco-cutaneous border, from caruncle to caruncle (figure 5); dissect the mucous membrane of the posterior vaginal wall at least two inches upward and free it well laterally in order that the stitches can be so introduced as to bring about restoration of the proper tension of the recto-vaginal fascia and levatores ani muscles.

The recto-vaginal fascia is rather loosely attached to the rectal wall and rather closely attached to the vaginal wall, so scissors should not be used in making the dissection, by pushing the instrument between layers of tissue and opening the blades, as the looser line of cleavage will more likely be found and followed and throw the recto-vaginal fascia forward with the flap and out of the way for stitching. Furthermore, there is a plexus of veins between the recto-vaginal fascia and the rectum which causes troublesome bleeding when the dissection is made here. Use a sharp knife and keep between the mucous membrane of the vagina and the recto-vaginal fascia (figure 6) and, after completion of the flap raising, a row of 20-day chromic cat gut sutures is introduced, taking a good bite well out on each side as illustrated in figure 7, catching the recto-vaginal fascia, not necessarily the levator ani,

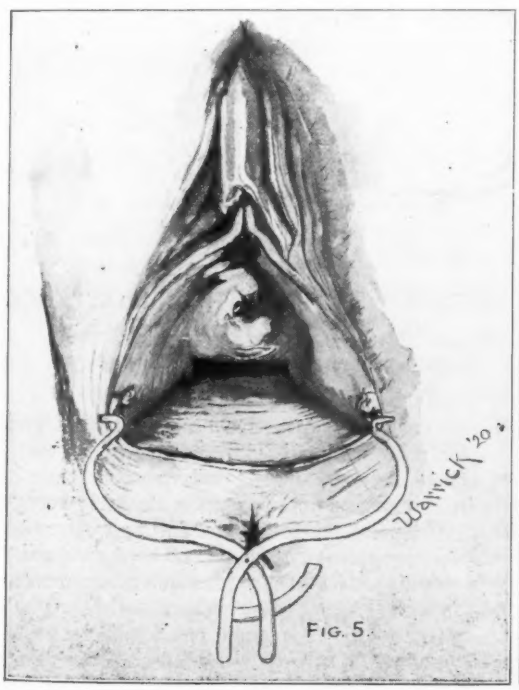


FIG. 5.

FIG. 6

since the latter is continuous with or attached to the former.

In tying the sutures, the recto-vaginal fascia, if torn, is brought together and, if stretched but not torn, it is folded upon itself and strengthened. At the perineum proper (figure 7), two or more sutures of chromic gut or silk-

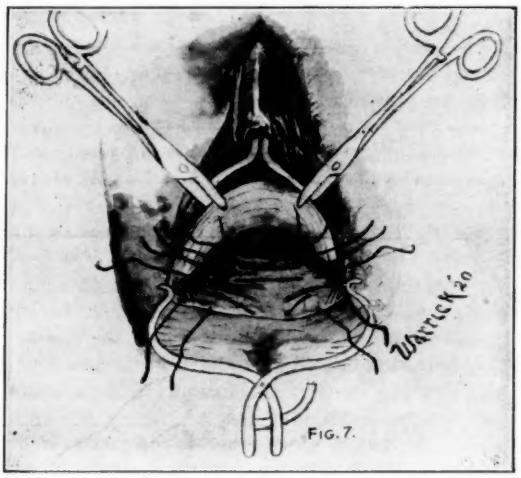


FIG. 7.

worm gut are introduced close to but not through the edge of the skin, catching the end of the transversus perinei muscle and the lower edge of the levator ani muscle, and brought out after one-fourth inch bite, then re-introduced, taking a one-fourth or one-half inch bite across the middle line in front of the anus, brought

FIG. 8.

out and again re-introduced, taking the same bite in the opposite transversus perinei muscle and lower edge of the levator ani, and coming out at the skin margin.

When all these sutures are tied, the musculo-fascial plane of the recto-vaginal septum is restored as well as the perineum. Note how thoroughly the perineum is restored (figure 8), the last two sutures catching, as they do, the lower edge of the levator ani and the transversus perinei on each side and taking a good bite of tissue at the center of the perineum in front of the anus, when tied, pull the muscles inward and the anus forward, thus correcting the backward drop of the anus and preventing the long distance usually seen between anus and vagina after perineorrhaphy. However, restoration of the perineum is of less importance than restoration of the musculo-fascial plane in the recto-vaginal septum.

The vaginal flap, if too voluminous, can be treated by cutting a wedge-shaped piece out of it at one side, so that, when the edges left by removal of the wedge are stitched together, the line of sutures will be laterally placed and not over the line of sutures in fascia and muscle. Usually the flap can be dropped down on its original bed. There will be folds, of course, but the flap is seldom so full as to require the removal of a wedge.

In either case, the lower margin of the flap, after a little trimming, should be stitched to the skin margin with a few cat gut sutures. It is best to use only three or four sutures, thus leaving pretty good intervals for drainage; otherwise, a hematoma might form under the flap, encouraging infection.

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INTUSSUSCEPTION—THE IMPORTANCE OF AN EARLY DIAGNOSIS.

By WILLIAM P. McDOWELL, M. D., Norfolk, Va.

There is no condition encountered by the physician in his practice among infants and children in which the importance of an early diagnosis is more urgent or imperative than it is in intussusception, for upon its early recognition depends the life and future welfare of the little patients. Most text books describe the condition as of an infrequent occurrence but, from personal observation, the author has found that its frequency is of sufficient importance to be always kept in mind whenever

considering the differential diagnosis of intra-abdominal maladies.

The pathology of intussusception consists of an invagination of one part of the intestines into another part. This may occur anywhere along the tract, from the duodenum to the rectum, and while it usually takes place from the above downward, the reverse condition may be encountered. As the invagination takes place the mesentery is drawn in with the bowel and is sandwiched in between the two layers of gut. Traction upon the mesentery leads to the obstruction of its blood supply there by producing congestion, œdema, hæmorrhage, or even gangrene. On account of the swelling thus produced, strangulation or obstruction results. The amount of gut involved in the strangulation may vary from a few inches to as much as eight or ten inches.

According to the location, various types have been described; thus we have the "enteric," "colic" and "ileo-cecal." This latter variety is the most frequent, furnishing almost 85% of the cases coming to the operating table or found at autopsy. In the ileo-cecal type the ileum passes from above downward into the cecum, pushing the ileo-cecal valve forward to form the apex of the intussusception. There is no age in which the condition does not occur, but it is more especially a disease of early life. Infancy shows the greatest susceptibility with the largest number of cases occurring between the fourth and ninth months, furnishing at this period the most frequent cause of acute intestinal obstruction. While it may be met with in older children or adult life, it is usually as a complication of some other abdominal condition. It is the condition met with in infancy to which I wish especially to call attention.

As to the etiology of intussusception, nothing definite is known. Various causes have been suggested, but they seem to be only problematic and up to the present time the cause still remains in the realms of obscurity.

The various forms of enteritis, diarrhea, enlarged mesentery glands, abdominal tumors, polyp, diverticulae, improper food, traumatism and exposure to cold, have all been mentioned as exciting causes, while typhoid fever and pertussis have been complicated or followed by the condition. It is not at all unusual for the mother, in giving a history as to date of onset, to state that the illness followed soon after a fall or some other slight traumatism. The author has seen intussusception occur several times in the course of an infectious diarrhea, and on one occasion saw it associated with a large sarcoma of the left kidney. However, in the majority of cases the patients have been well nourished, breast fed infants, who gave no history of previous illness or intestinal derangements. Statistics show that males are more frequently afflicted. No explanation has been offered for this fact and it is of no diagnostic importance.

Holt attributes the greater frequency of the disease among infants to the thinness of the intestinal walls, the greater mobility of the caecum and ascending colon, due to the increased length of the mesentery, and to the presence of other intestinal derangements at this age.

Nothnagle has shown by his experiments on animals with the electric current that intussusception could be produced by irregular contractions of the intestinal walls. In view of his experiments, it seems more than probable that irregular muscular contractions, produced by whatsoever cause, might also play an important part in the production of similar conditions in the intestinal tracts of infants.

The clinical picture is so striking, that when once observed, it will hardly ever be overlooked. The onset as a rule is sudden, usually ushered in with vomiting, acute abdominal pain, bloody stools and prostration. The pain is paroxysmal, colicky and severe in character, coming on in many instances while the infant is nursing at the breast or during a sound sleep. These paroxysms occur at frequent or long intervals, each paroxysm being announced by a sharp, piercing cry, whereas during the interval the patient may appear quite comfortable, even falling off into a peaceful sleep from which it is soon aroused by return of the pain. The frequency and character of the vomiting varies in pretically all cases; while it usually occurs early and is persistent, it may be present only once or twice during an entire attack. At first the vomitus is composed principally of the contents of the stomach, usually undigested food, but after the condition has existed for a variable length of time and the stomach has been emptied, each act of emesis is accompanied by much retching, and the vomitus consists of a small amount of mucus and gastric secretion. Stercoraceous

vomiting is a late symptom and does not occur until the obstruction has existed for several days and the strangulation has become complete, thereby causing a reverse peristalsis. The character of the stools is most important. At first they may appear perfectly normal but soon the fecal character is lost, blood and mucus becoming the predominating feature. With each paroxysm of pain a small stool may be passed; this is usually accompanied by tenesmus. In some cases the amount of blood is profuse. I recall a case seen in consultation in which the blood was so profuse as to saturate the clothing of the patient, resembling very much a hæmorrhage sometimes seen occurring in a case of typhoid fever. While in the majority of cases the blood and mucus appear in the stool early, there are incidences in which these symptoms may be a later manifestation, not appearing until twenty-four to thirty-six hours after the onset. Rarely constipation may occur in the beginning of an attack.

Shock is usually present from the onset. Manifested at first by slight pallor, with the advance of the invagination the patient rapidly passes into a state of prostration or even collapse with marked pallor, sighing respiration, cold, clammy extremities, with rapid feeble pulse. With the return of each paroxysm these symptoms become more pronounced and the facies of the patient shows every indication of extreme suffering.

No diagnostic importance can be attached to the temperature; it may be normal, subnormal, or elevated. As a rule, elevation does not occur until after the condition has existed for a number of days and the inflammatory process has become extensive.

It is possible in practically all cases, at some stage of the disease, to demonstrate an abdominal tumor and, when associated with the other clinical symptoms, it may be regarded as absolutely pathognomonic. The absence of a tumor, however, should not deter one in making a diagnosis for, if the intussusception be located in the hepatic or splenic flexures, the tumor may be easily overlooked. Its location depends upon the time that has elapsed since the onset. In the early stage it may be found laying on the right side, high up in the hepatic flexures, underneath the margin of the liver, in which position it may be difficult to be felt. As the invagination progresses along the line of the transverse colon, the tumor will be found on the left side and, if the examination be made from twenty-four to thirty-six hours after the onset, in the majority of cases it will be found low down in the rectum. Statistics show that in the largest number of cases the tumor is found in this location.

Not infrequently the tumor may protrude from the anus, giving the impression of a prolapsed rectum or a hæmorrhoidal mass. In a series of one hundred and eighty-eight cases reported by Holt, this occurred twenty-two times. Its character may be described as a freely movable, elongated mass, somewhat curved or crescent-shaped, varying in size from a few inches in length to a mass which entirely fills the iliac fossae. To the touch it has a characteristic "boggy" feel but, if stimulated by any manipulation, or even during a paroxysm of pain, it may become more prominent or even distinctly erectile. Only recently this fact was called to my attention by a mother of one of my patients who, before my arrival, had discovered a mass in the child's abdomen and had noticed that it became more prominent during the period of pain. Little difficulty is encountered in making a satisfactory examination of the abdomen in the early stage of the disease, for at this time the muscular walls are relaxed and offer little resistance. After the strangulation has existed for several days and the inflammatory condition has progressed to such an extent that peritonitis has become established, muscular spasm and tenderness may be so great as to preclude any manipulation. Under these conditions one is entirely justifiable in administering an anæsthetic to complete the examination.

In palpating for a tumor, a rectal examination should always be made and, in this connection, I wish to emphasize the importance of a routine rectal examination as a diagnostic aid in every abdominal condition. By this procedure it may be possible to demonstrate a tumor whereas an external examination has failed to reveal its pressure. By patience and gentleness, it is possible to make a very satisfactory rectal examination even in the youngest infant.

Langley Porter describes a condition which he considered a most important contribution to the diagnosis, and that is a feeling of emptiness that meets the hand palpating over the right iliac fossae. This sensation of emptiness

he attributes to the absence of the caput coli from its normal place and, in cases where the tumor is small or hidden under the liver, he believes the condition, when considered in conjunction with the picture of abdominal shock and bloody stools, to be absolute diagnostic.

From the standpoint of a differential diagnosis there are only a few conditions with which intussusception is apt to be confused. Those cases in which the onset is sudden with vomiting, recurrent paroxysmal pain, bloody stools, abdominal tumor associated with more or less shock, rarely present any diagnostic difficulties.

The most frequent mistake is to confuse intussusception with infectious diarrhea. It is however not difficult to differentiate between these two conditions. Intussusception begins acutely with pain in the abdomen and evidence of shock, the stools of mucus and blood not appearing until later, whereas the onset of infectious diarrhea is less acute, often being preceded for several days with other gastro-intestinal disturbances; the pain is usually not present or, if so, it is slight, and there are no symptoms of shock, while the mucus and blood may appear in the stools almost at once. Fever is common to both, but is higher in infectious diarrhea. The presence of an abdominal tumor will clear the diagnosis, tumors being absent in infectious diarrhea. It must not be overlooked, however, that intussusception may occur in the course of an infectious diarrhea, in which event a tumor is usually present.

As soon as the diagnosis of intussusception has been made, regardless of the stage of the disease, the condition immediately becomes a surgical problem and, as soon as this fact is more fully appreciated and the case placed in the hands of a competent surgeon, just so soon will the mortality from this condition be reduced. In no other disease does delay result in more serious consequences. Various mechanical methods at reduction have been suggested. Hydrostatic pressure, inflation of the gut with air or gas under pressure, oil enemata, external manipulation under anæsthetic, have all been tried with more or less success, but they are mentioned here only to be condemned, for they are uncertain as to results and may be the cause of unwarranted delay.

Laparotomy in the hands of a competent surgeon is a simple and safe procedure. When resorted to early in a case of intussusception it is usually an easy matter to bring the tangled gut into the field of vision and reduce the invagination, thereby relieving the obstruction. This should always be done early, for statistics show that, while the average mortality is about 50%, those cases which are operated on in the first twenty-four hours give a mortality rate of less than 10%.

In conclusion, I wish to make a plea for the infant who is taken suddenly ill with paroxysmal abdominal pain, vomiting and constipation, and to urge upon you not to administer a purgative until you have thoroughly satisfied yourself that you are not dealing with an intestinal obstruction.

Case 1. Ollie May. Female, white, age 9 months. The first and only child of healthy parents. Was born at term after normal labor. Her birth weight was not taken, but she was said to have been a well developed, fat infant. She had been breast fed entirely and had never been sick.

Seen in consultation April 6th, 1919. She was taken suddenly ill three days previously with vomiting and paroxysms of crying, during which attacks she would flex her legs up on her abdomen as if in acute pain. The paroxysms recurred at various intervals and with each attack she would become quite pale. Two hours after the onset she passed a large stool, consisting principally of mucus and blood, and a small amount of fecal matter. The paroxysms continued throughout the day and night and she refused to nurse. She was seen the next day by her local physician who prescribed calomel powders. This purgative was followed by a number of bloody, mucous stools. On this day the mother states that she felt a "lump" in the baby's abdomen which she had never noticed before. The vomiting and bloody stools had continued until the child was admitted to the hospital.

Examination showed a well developed, slightly emaciated infant, in an extreme degree of shock, with marked pallor, drawn and anxious facies, cold extremities and sighing respiration. Temperature 102, pulse 150, of poor volume but regular. Mouth was dry and tongue was covered with a dry brown coat. Chest was negative. The abdomen was full, slightly tender but not distended. On the left side was felt a smooth, firm, non-tender, round mass about the size of an orange, which extended down to the crest of the ilium. During

bimanual examination, with one finger in the rectum, this mass could be easily palpated. This examination produced an attack of vomiting and, on withdrawing the finger from the rectum, there was expelled about a tea-cup full of bloody mucus.

From the clinical symptoms a diagnosis of intussusception was made, though the mass was out of keeping with the tumor usually found in this condition. An immediate operation was advised and consented to. The operation was performed by Dr. Charles Doughtie. On opening the abdomen, the large mass was found to be situated extra-peritoneal. On further examination of the abdominal cavity another elongated mass, about 7 or 8 inches in length, was felt and when brought into view was found to be an invagination of the ileo-caecal variety. This was easily reduced and the abdomen closed and no further attempt made to investigate the other mass.

The patient left the operating table in fairly good shape and made a good recovery. Eight weeks later a secondary operation was made to determine the nature of the remaining tumor. On opening the abdomen the mass was found firmly attached to the left kidney. A nephrectomy was done and a histological examination showed the mass to be a round cell sarcoma. On November 15th, the patient was again admitted to the hospital suffering an extreme degree of shock, due to an acute intestinal obstruction. The abdomen was again opened by Dr. Doughtie and the obstruction found to be due to a large number of adhesive bands, associated with a return of the sarcomatous growth. The patient left the table in practically a moribund state and died about two hours later.

Case 2. Baby A. Male, white, 5 months. The first and only child of healthy parents. Was born at term after normal labor and weighed 9 lbs., 8 oz. Had always been breast fed and had never been sick. Was seen in consultation on November 24th, 1918.

He was taken sick five days previously with acute abdominal pain, nausea, and vomiting. Mother gave a mild purgative, from which he had two or three normal stools; afterwards seemed better. For the next two days he had no vomiting, nursed well, played with toys and seemed all right. The following day there was return of the trouble; he was nauseated, vomited and had paroxysms of crying, drawing his legs up on his abdomen as if in pain. These paroxysms recurred at intervals all during the night. At each attack mother noticed that the patient became quite pale. About two hours before he was seen in consultation he had a large bloody stool. The amount of blood was profuse, following which the patient was much prostrated.

Examination showed a large, fat, male infant, listless and pale. Surface of the skin was cold and clammy. Pulse 140, of small volume. Temperature 99-2/5, respiration 20. The eyes were clear and pupils reacted to L. & A. Ears, mouth and throat negative. Chest negative. Abdomen full, though soft. In the epigastric region, along the line of the transverse colon, extending well over to the left side, could be felt an elongated, firm, smooth, movable mass. There was slight tenderness and any manipulation of the mass produced nausea. A diagnosis of intussusception was made and immediate operation advised. The patient was removed to the Protestant Hospital and operated on one hour later by Dr. Ruffin. On opening the abdomen the tumor was found to be an invagination of the ileum into the colon, involving about 8 or 10 inches of gut. No trouble was encountered in reducing the invagination, and the patient made a good recovery.

Case 3. Baby T. Female, white, age 6 months. First and only child of healthy parents. Was born at term, after normal labor and weighed 7 lbs., 8 oz. She had been fed on modified cow's milk since birth. Was convalescing from a three weeks' attack of infectious diarrhea, during which attack she had been having from 10 to 20 bloody, mucous stools, daily. Was seen at 3 p. m., June 5th, 1919, and apparently was in good condition. During the previous two or three days her stools had been better, 2 or 3 in number, being entirely free from blood or mucus. At 7 p. m. the same day, her mother phoned me that the patient had been crying as if in pain, and had passed some blood and mucus in the last stool. Thinking there had perhaps been an exacerbation of the dysenteric condition, I advised the stopping of all foods until morning and ordered a dose of castor oil. At 10:30 o'clock the mother phoned again that the patient had been unable to retain the oil and had passed several bloody mucous stools. I was then convinced that we were dealing with a condition

more serious than infectious diarrhea, and intussusception was suspected. On visiting the patient, a different situation was found than on my afternoon visit. The infant looked sick, the color pale, surface of the body cold, eyes were sunken, and the facies showed sign of shock.

On examination, a firm elongated mass was easily palpated, lying on the upper part of the abdomen, along the course of the transverse colon. A diagnosis of intussusception was made and the situation explained to the parents who readily consented to an operation. Patient was removed to the Sarah Leigh Hospital where she was operated on within the next hour by Dr. Culpepper. On opening the abdomen, the tumor mass was found to be an intussusception of the ileo-cecal type, involving about eight inches of the gut. The invagination was reduced without difficulty and the abdomen closed. The entire operation did not require more than fifteen minutes, and the patient left the operating table in good condition. Convalescence was rapid and the patient made a satisfactory recovery.

THE HOSPITAL AND THE DOCTOR OF TODAY IN RELATION TO MEDICINE OF THE PRESENT AND THE FUTURE.*

By HENRY A. CHRISTIAN, M. D., Boston, Mass.

For the sight-seeing public at home and abroad hospital buildings not infrequently are noted in their baedeckers or are pointed out by their couriers and guides as objects of interest. Rarely, however, do they constitute for the laymen examples of architectural art and only occasionally have they gathered about themselves traditions of past great names with which to arouse an interest in the passer-by. Yet, to the medical man, hospitals are the visible evidences of the progress of medical science and art; in their architecture they are expressions of periods of development in medicine and with their names are twined the traditions of the profession back to that period when physician and priest were one and the same and temple took the place of hospital.

As you, who are not initiated into the mysteries of medicine, pass a modern hospital building, I fancy I can hear you say, "Why was it constructed in this form?" "Is there any real reason for this particular style of building," or more likely I would hear "lack of style in building?" I cannot enter the lists as a defendant of hospital construction from the point of view of claiming that the modern hospital building forms an architectural adornment of a city in the eyes of the laymen. Sometimes it does, and usually those are hospitals unsatisfactory from the professional side. However, given a certain purpose, location determined by the needs of the problem, and certain available sums of money, if architecture in its truest sense is an expression of the purpose of an edifice, then many of our modern hospitals are architectural achievements to those eyes that have learned to read into the bricks and stones the purpose of those who created the building.

Why do they not seem more beautiful, for beautiful they rarely are to the lay eye? Many reasons enter here. Architects are unskilled in hospital construction because rarely does an architect during his lifetime plan more than one great hospital. Medical progress has prevented the establishment of rules and traditions for hospital construction. The medical man has certain requirements of inside arrangement which interfere with position of windows and doors, determine number of stories, balconies, roof lines and a hundred other things which must be proportioned and balanced, moulded and decorated to give an exterior architecturally satisfactory. Medical needs are constantly changing. Medical men know little or nothing of architecture: the architect is similarly ignorant of medicine. Is it any wonder then that the professional requirements within dominate the exterior and the architect who has yielded here and given in there presents an external compromise unsatisfactory to himself and unlovely except to those who can read into the structure an expression of its purpose and an index of its activities? Medical men must be blamed for

* An address at the annual dinner of the Sphex Club of Lynchburg, Va., March 27, 1920. This was an audience of laymen, not physicians.

these conditions, not the architects.

What determines the form of the modern hospital? Why are some of the skyscraper type, while others are dotted cottage-wise over an extensive green lawn, and still others are more compact and yet made up of separated buildings of many forms? As good an answer as any is; the needs of the individuals to be served determines the location; the requirement of fresh air and an abundance of light determines the form, a form further modified by the type of patient—acutely or chronically ill, young or old, sick of body or mind, a danger to his neighbor or not by reason of the contagiousness or lack of contagiousness of his disease.

The skyscraper type is an expression of the need of a hospital in a thickly congested district where land values are so great that economy requires story piled on story to reach fresh air and sunlight, while the lower floors serve for administration and the out-patient activities that make of the hospital of the densely populated district not merely a place for the cure of disease, but a social center for its prevention.

The cottage type suggests the chronically ill of mind or body for whom outdoor occupation is needed, not merely the passive enjoyment of fresh air. These patients' diseases do not prevent their transportation, and they do not require emergency treatment from surgeons and physicians. These and other reasons make it wise to go for a site outside the city where land values are relatively low.

The third, or pavilion type, represents an intermediate position, a combination of the advantages of the skyscraper type and the cottage type. This latter type is the one just now most preferred for large hospitals for those acutely ill of non-contagious diseases, as it gives an abundance of air and light and still occupies a sufficiently restricted area to permit of its location close to the congested districts of the city.

At first thought the function of a hospital would seem simple; to alleviate suffering and cure illness is the generally held idea of a hospital's purpose. This is one of its chief functions, but not the sole one. Equally important are its educative and investigative functions. Nurses, medical students and graduate physicians are daily being educated in the modern progressive hospital. If its work is well done, out from its doors goes each year a steady stream of men and women trained to serve the community in the great fight against disease and its consequences. Equally important in educative value is the effect of the hospital on the patient. Imagine the silent influence exerted on the woman from the dirty, poverty-stricken tenement by a three weeks' sojourn in the clean wards of a hospital, where she is well fed and given cheerful, efficient service from nurses and doctors! Her friends come, too, to see her and to many this visit gives them their first impress of the joy of a clean body and fresh linen. Such contacts can be but an inspiration to better living. The efficient hospital, however, does not leave the matter at this point, but by continuation treatment in convalescent homes, by return visits to its outdoor department and by social service and other forms of follow-up work in the home, the hospital seeks to nurture the seeds thus sown by the sojourn in the hospital. It is difficult to measure in any concrete form the influence thus exerted by the hospital, but we see often in those, who come again for subsequent hospital treatment, evidences that in their first sojourn influences had been started at work which had improved their conditions of daily life. A spirit of friendliness more and more is becoming a dominant feature of efficient hospital service and friendliness is assuredly one of the great factors in the uplift movement. As time goes on it becomes increasingly clear that the hospital of the future is to be a civic health center in the community in which it stands.

But what of the teaching work carried on in the hospital wards? Do the patients not object to being utilized for the instruction of medical students and nurses? Strange as it may seem, the answer most emphatically is "no." The medical man has been long con-

vinced that teaching hospitals are the most efficient; that in them the examination of patients is most thorough and diagnosis most carefully made. Why? Because the keen-eyed, critical, eager medical student cannot be fooled by the cursory examination and careless diagnosis. No teacher can long survive his pupils' criticism of careless work. Even the general public is coming to recognize this, as was well shown recently in one of our large cities where the trustees of a sectarian hospital asked of a medical school that they should make of their institution a teaching hospital. When asked the reason for this change of attitude, for that hospital had rather boasted in past years of not having medical students in its wards, there came the rather surprising reply from its lay board of trustees, "We have found that patients prefer the teaching hospital." This information came in this wise. They had noted a falling off in the number of patients entering their wards and particularly in those able to pay ward charges. A social service worker, investigating this by questioning former patients, often received the answer, "When we can afford to pay we go to hospital A (a sectarian hospital near by in which there is much teaching). If we cannot get into A we come to your hospital." Further questioning brought out that the people considered that in hospital A they were more thoroughly studied and better treated. As one patient said, "At A I have a young assistant almost entirely to myself and the senior doctors always discuss my case with the junior." This, gentlemen, is ward teaching; the young assistant is no other than the medical student and the discussion of his case is his instruction, but, true it is, that this very exercise often brings to light facts of great value in determining diagnosis and treatment.

Any objectionable feature from the viewpoint of the patient in hospital teaching we hear of almost solely from the outside, from those who do not understand what is done; it is not a problem that disturbs us within the hospital walls. In fifteen years' intimate association with hospital teaching I can recall but few complaints from patients because of examinations made by students, and these are more than offset by those who give vent to their sentiments, as did an old Irish woman in my wards, who said one morning: "And shure, Professor, can't I have one of thim little doctors all for meself, like Mary Ann in that ither bed. I've got so miny troubles to get off my mind and you real doctors are too busy to bother." The medical student does much of the hospital routine work while being taught and so adds his part to the efficiency of the institution.

What of medical investigation? Like investigation in any field, it is the inspiriting influence that freshens the daily teaching and the routine of medical practice and administration. Medicine is essentially an advancing profession, and the hospital that contributes nothing toward that advance is one that is rapidly dropping behind in medical progress. Each patient in reality presents a problem for solution. To label his disease is not sufficient, for nature endows the human body with multitudinous variations that constitute the environment for the causative factors of the disease, which in turn are subject to similar variations, for the causes are in many instances living things, now of the animal kingdom, now of the plant world. So the sick individual to obtain the best results should be looked upon as a problem for solution. This attitude is most prevalent where investigation is being carried on. Hence, apart from the value to medicine as a whole of each new discovery there is a value to the individual patient in the spirit of investigation pervading the staff of a hospital. Decade by decade, now this hospital, now that, is able to throw light upon disease; in some cases by a single discovery to remove from the world untold suffering. This single discovery justifies years of labor and great expenditure of money, but such a reward can come to but few hospitals. However, they are the inspirations of our work, the goals to which we aim but rarely attain. All, however, by incessant delving

may contribute the minor facts on which eventually great generalizations may be based. Unlike most investigation, medical investigation not alone contributes a result in the conclusions drawn, but usually has benefited a number of individual patients during the progress of the investigation. For these several reasons the modern hospital encourages investigation and utilizes its funds in providing facilities for investigation, not as a thing apart from the regular hospital routine, but as an integral factor in the daily work of the institution.

In the cure of the sick, in the education of nurses, medical students, graduate physicians and patients, in the investigation of medical problems, results are obtained which concern not only the healing, but in a large sense the prevention of disease, so that prevention of disease becomes too an important function of the hospital built primarily for the treatment of disease.

These varied functions may be best fulfilled by the great hospitals of the large cities, but none of these functions need be lacking in the well organized hospital of the small city or even of the country district.

Judging the future by the past, we can picture the hospital of the future more as a civic health center than merely a place for the alleviation of suffering and the cure of disease. To it should come both the well and the sick seeking advice, receiving instruction, learning both the joys and value of properly adjusted play, getting directions as to how best to adjust body and mind to the strains and stresses of daily work, acquiring the knowledge of how to live a well balanced, hygienic, personal and community life.

Now let us turn to the doctor. How does he differ from the doctor of the past? In personal qualities not at all; he has always been the cherished friend and valued adviser of his patients; no right-minded physician can help being a power for good in his relations to individuals and communities; into his ears go the tales of troubles and worries of all sorts to be adjusted as far as possible by sane counsel. Mistakes he makes, for to err is human, but they are offset by a record of valued service. I say family physician, and I fancy at once there flashes into your mind the picture of a family friend and adviser who, in times of trouble, has been a rock of refuge. Modern developments have split off from the medical group the specialist, but the specialist never has and never can replace the family physician. The specialist is and should be the aid to the family physician. He should be used as but a tool of the family physician. The family physician uses a thermometer as a tool to measure temperature because it gives more accurate results than his unaided sense of touch; similarly he uses the specialist, let us say the eye man, because in the complexity of apparatus and knowledge no one man can know all methods, but the information supplied by the eye man is used by the family physician in much the same way as that supplied by the thermometer. The eye man finds that defects in the eye are causing headache and corrects the defect by appropriate glasses; the thermometer tells that there is a fever to be reduced by appropriate methods. Neither the eye man nor the thermometer yield knowledge on more than a limited field of the whole man whose ills are being treated by the family physician. The eye man, by reason of the time required to perfect his eye work, must lack knowledge of disease as a whole such as the family physician possesses. In this sense the development of specialism instead of destroying the place of the family physician but enhances it by providing more ways for obtaining knowledge of his patients. This is not always recognized at present by the patient and by the specialist, but it needs to be and as time goes on it seems certain that it will be.

As to training, the doctor of today differs much from the doctor of the past, largely in that he has been trained to use a host of methods of obtaining information about his patients which were lacking a decade ago, and he has many more methods of treating disease. Along these lines there is a continuous advance.

I think it will be of interest to illustrate these changes by a few examples. Today we study a case of Bright's disease by methods which measure the efficiency of the kidney to do its work as an organ for the elimination from the body of various deleterious substances that arise in the daily activities of the body and which, if not eliminated, lead to disaster. In the past about all that was done was to test the urine for albumin and sugar and to examine it under the microscope for casts and cells. Now we test the kidney's total efficiency by introducing into the body a harmless dyestuff which is eliminated solely by the kidney and of which we know that the normal kidney will eliminate 60 to 80 per cent. of the amount introduced in two hours after its introduction. This amount is determined by comparing the color of the urine passed in two hours with that of the solution of dyestuff which has been introduced hypodermically. With an instrument we can measure this and say whether 60 per cent., as should be, or only 20 per cent. is eliminated. Or we can measure the kidney's efficiency by seeing whether substances that should be eliminated are eliminated adequately or whether elimination is defective and they are piilng up in the blood. This we do by quantitating chemically the amount in the blood of these various substances. This can be done now on such small quantities of blood that the tests can be repeated daily if needs be without in any way harming the patient. By these means, moreover, we can give much more intelligent advice as to what the patient should or should not eat, basing the advice on the efficiency with which the kidney is actually handling the different foodstuffs. In other words, by these and other methods we take an inventory of what the kidney is able to do and by repeating the inventory from time to time see whether conditions are improving or not under the plan of treatment which we have advised. The older method was incomplete much in the same way as your inventory of stock would be incomplete if you had a cellar full of nails in kegs and merely counted the number of kegs in the front row and paid no attention to what sort of nails were in the kegs; the newer method is complete in the sense of an inventory that counted all of the kegs and gave the number of kegs of each sort of nail and from time to time repeated the count to see whether stock was growing low and what sort of nails should be ordered to keep the stock in balance with the demands made on it by sale.

Today we have a means of studying the heart action which tells us far more about what is going on than did our former methods. If a muscle contracts, a very slight electric current is set up and the direction of this current depends on the line of direction of the contraction wave as it passes over the muscle. The heart is a very complicated muscle which is constantly contracting and relaxing at a rapid rate but in an orderly sequence, in order that the heart with its valves should function as a pump. In disease this sequence becomes disordered. Now these electrical disturbances set up by the contracting muscle of the heart are very slight and can only be detected by special methods. It is a fact in the physics of electricity that if you have a magnet and suspend between its poles a fine wire and if a current passes through this fine wire, the wire will be deflected in one direction or the other, depending on the direction which the current takes, and the amount of deflection will vary with the variation in the strength of current. To detect very slight currents we must have an exceedingly light wire suspended between the poles of a very powerful magnet. To study the heart we use for the light wire a filament drawn from molten quartz or glass and, in order that it should be a good conductor of electricity, this is plated with silver. To prevent tarnishing of the silver this may be covered with gold plate. Still this filament is so fine that it can be detected by the eye only when a beam of light shines on it. For a magnet we employ a soft iron core wound with many turns of insulated copper wire through which is passed a 220 volt current of electricity. As this filament is so fine and its

movements are so slight they have to be magnified by a system of microscope lenses through which pass a beam of light from a powerful arc lamp. By this means the shadow of the filament is thrown on a moving strip of sensitive photographic film and, as it moves, these movements are recorded and, when the film is developed, appear as curves, which may be studied and analyzed in contrast with those of other heart records. This all sounds very complicated, but it is an apparatus in daily use in many hospitals. It is so delicate that the patient does not need to be close to the instrument, but may be comfortably in his bed in any part of a large hospital and be connected by wires such as we use for our telephone with the instrument and a record be made of his heart action on the instrument situated in a remote part of the building. In our own hospital, we have connection in use as far apart as two city blocks between patient and instrument. By means of this instrument, which we call an electrocardiograph, we can tell many things about what the heart is doing and, furthermore, we can know accurately what different portions of the heart may be doing, such as the upper or lower chambers or the right or left side of the heart.

Radium is a new substance which we use to treat certain conditions. Much remains to be learned about it, and we cannot say just now of how much value it is going to be; it seems to be of marked value in treating some sorts of cancers, and some diseases of the blood. Radium is a very interesting and, in some ways, a mysterious substance. First, it is very expensive; it costs today $120,000 a gram, which is about 1/500 part of a pound, or between fifty and sixty million dollars a pound. Second, there is only a limited supply in the world, almost all in the United States, variously estimated at the present rate of production of about 15 grams a year to last five to ten years, if all known ore deposits are mined. Third, a little of the substance radium will go a long way, for it is constantly giving off emanations or rays which may be caught and condensed and used for all purposes that radium is used for. Radium is very peculiar in that it constantly gives off energy and yet deteriorates very slowly. At the rate of its deterioration it would take 1,650 years for 1 gram of radium to be reduced to ½ gram, and at the end of 3,300 years you would still have ¼ gram of active radium. So, practically for us, it is indestructible. If it is lost it can be readily found by a detector, which shows it up by its property of discharging an electrometer. If one of you had stolen radium and had it on your person, with an electrometer I could easily locate it. Incidentally, if you undertook to carry it for any length of time in your pocket, later on you would see a terrible sore develop in your skin where it had been nearby. A nurse by mistake threw some radium into a slop hopper; it was located in the sewer in the street, dug out and recovered. Another bit was thrown into the furnace by mistake. The ashes were collected, sent to the laboratory of the Bureau of Mines in Washington and nearly 90 per cent. of the radium was recovered. Fourth, the emanations it gives off change rapidly into other substances, some with a duration of a few days, others with a duration of but minutes. So radium has upset many of our ideas of the immutability of matter and the unchanging character of atoms. Fifth, it works all sorts of queer changes in things with which it comes in contact, including living tissues. This latter we use in medical work. The strange thing about the action of radium on the body is that it or its emanations are applied; nothing is felt; no change is seen, but several days or weeks later changes begin and continue for some time thereafter. If too long an exposure is made, weeks later a great sloughing sore appears which may require months and months to heal. Radium has opened up a large new field for study and investigation of means and methods of treatment and may serve as an example of a large group of activities of rays of one sort or another, X-rays, etc.

The chemist and the biologist have advanced greatly methods of treating disease, and the doctor needs to understand the underlying

principles of these sciences to apply intelligently their results. It may be discovered that some chemical substance will destroy a parasite that is causing a disease, for example, such a disease as hookworm, but it cannot be given to the patient because it is equally poisonous to him. The chemist finds out the molecular structure of the substance in question; by means of chemical methods he can change or add something to any part of the molecule. By making these changes he may find out that one group in the molecule is poisonous for the parasite and another poisonous for the host. The latter group he seeks to remove or to substitute with something else until finally he secures a product that still poisons the parasite, but does little harm to the patient who harbors the parasite. Now the substance is in form to use in treatment, and in this way effective new methods of treating disease are being evolved or older methods are being improved. This work involves making many hundreds of substances in the laboratory and testing them on many hundreds of animals before a single new remedy is worked out. Again, such work requires an intimate knowledge of the parasite and its course in the body. This may be very complex as in the case of the hookworm. Hookworm eggs hatch out in the warm sand and set free minute little worms. These come in contact with the skin of barefoot individuals and make their way into the skin, causing an irritation, the ground itch. Next they circulate in the lymph and blood vessels and finally get to the lungs. Here they are too large to get through the fine blood vessels and so break their way into the lungs and come up or are coughed up the wind pipe as high as the back part of the throat. From this place they are swallowed, pass through the stomach and attach themselves to the wall of the intestine just below the stomach, where they grow and cause damage. All of this must be known to plan a proper attack on a parasite and indicates the complexity of knowledge that is necessary in working out new ways of treating disease.

I might go on and enumerate other examples, but these are sufficient to indicate the need for constantly improving the training of the physician.

Each year brings new advances in science, much of which helps in the fight for the prevention and cure of disease. The future is full of promise of achievement. Is it any wonder that the field of medicine is an ever fascinating subject to the medical man and that the many possibilities of achievement lure medical men to spend months and years in the investigation of its problems? To him the future is full of promise; to you his successes in advancing knowledge of disease are of vital interest, for on this knowledge depend your health and happiness and that of your families and children.

A PLEA FOR CESAREAN SECTION WITH BETTER OBSTETRICS.*

By S. B. MOORE, M. D., Alexandria, Va.

With the improved technique of modern surgery and obstetrics, we can and do cesarean section with a very low mortality to both mother and child and, with this in view, under proper surroundings as in a modern hospital, we do not hesitate to open the abdomen to remove a child to save one or both.

Physicians must educate the public to this view point, more especially in rural districts. In cities the public are more in touch with these life-saving measures and are not afraid to go in the hospitals when there is an indication for this operation. Each year hundreds or thousands of mothers and children are sacrificed because of protracted labor, or delayed labor, due to deformities of the mother's pelvis which are unrecognized until too late. Diseases of the kidneys or heart cause high mortality.

I believe it is about time that the medical man and the public are awakening to the fact that over ten thousand mothers and fifteen thousand babies are sacrificed every year. Many of these could and should be saved by more careful treatment of the pregnant woman and by following the case from beginning of pregnancy to the time of delivery. The kidneys should be closely watched and pelvic

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measurements made in all cases, especially primipara. We should make a complete physical examination in every case. If there is kidney or heart trouble, give it proper treatment. If there is a contracted or flat pelvis, make arrangement for cesarean section in some modern hospital. Send the patient in at about eight and a half months and let the operating be done without any previous interference, and do not put the operation off as last resort. If you attempt instrumental delivery and fail, in a majority of cases you will have infection to deal with, and this will increase the mortality rate in the operation.

In eclamptic coma do not hesitate. I move all eclamptic cases to a hospital and treat there; if they do not respond to medical treatment, cesarean section should be done. This operation should be resorted to when the head will not come down in the pelvis after twelve hours real labor.

High forceps operation very often does considerable harm to both mother and child and, as you all know, our institutions are filled with children suffering from birth injuries; forceps badly applied are the cause of the major portion of these. The surgeons are busy repairing damage to mothers due to work of midwives and some physicians.

Cesarean section is a safe procedure today, the previous risks of all surgical operations have been eliminated. Under proper conditions and if the operation is performed at time of election, the mortality is no higher than in appendicitis, or about 1% or less. It is not considered an emergency operation or one of last resort. Place yourself in the position of the surgeon called in to perform the operation after hours of hard protracted labor with digital interference, failure to apply forceps firmly having caused many lacerations, and probably infection and numerous other conditions, and you will appreciate the situation confronting him. We will cut down the mortality to both mother and child by cesarean section in placenta previa, or in cases of concealed hemorrhage, or pernicious vomiting after the seventh month.

A few years back we did considerable surgery in private houses, but the technique was never good and, naturally, the results not so good as in well appointed hospitals. Today you rarely see an operation in a private house, and for the same reason we should use more care with our obstetrics.

Present day conditions have evolutionized obstetrics and drawn it into the field of as clean work as in surgery. The obstetrician who fails to use the most up-to-date technique falls short of the mark set by the best man. We are getting excellent results in surgery with asepsis, antisepsis, technique and team work, and we can do the same in obstetrics, especially the troublesome cases.

Statistics show that grouping all women of child bearing age together, tuberculosis alone is more deadly than childbirth. Take the year 1915 for an example:—there were among women from 15 to 45 years, 29,200 deaths from tuberculosis, 10,134 from childbirth. This is going on year after year without much improvement. I consider it the greatest medical crime of today. Obstetrics has always been the most exhausting branch of medicine and the obstetrician is the poorest paid, according to the time consumed and the ungodly hours he is called upon. It is the duty of the physician to charge more and give better service; at least do clean work and cut down the infection.

The medical schools should pay more attention to practical teaching. A great majority of the physicians go out with but a vague knowledge of obstetrics; many never have an opportunity to deliver a case and probably see only a few cases delivered. Those who are fortunate enough to get hospital appointments are better equipped and will do better work, provided they keep up with modern methods by reading the best medical literature and occasionally taking in some good clinic.

A word in regard to the midwife:—She is usually a very ignorant woman who has a house full of children and, for the reason of this great number of children, the laity is under the impression that she is capable of making a good delivery. She has not the least idea what to do in an obstetrical emergency, and no knowledge of asepsis. If everything goes according to schedule, she will tie off the cord with any old cord and use a pair of scissors that she may find around the house, without any attempt at sterilization, and the patient gets through by the grace of God. She may call in a physician if the family gets uneasy and demands it.

It is the duty of the physician to educate the public to the fact that we must have clean obstetrics, and serious obstetric emergencies should be treated in well appointed hospitals

and these emergencies should be recognized early. I believe the day will come when we will send practically all obstetric cases to hospitals as we do surgical cases today, and by this will save thousands of lives each year. In closing, I caution you again to examine every pregnant woman carefully and, if there are indications for cesarean section, do not put it off as a last resort but make an operation of election.

SOME DISTURBANCES OF THE PITUITARY BODY.*

By FRANK H. REDWOOD, M. D., Norfolk, Va.

At present we speak of three rather distinct classes of pituitary disease: viz., hyperpituitarism or overfunctioning of the pituitary body, associated with giantism and acromegaly; hypopituitarism or underfunctioning, associated with infantilism, both physical and mental, and with adiposity; and lastly, dyspituitarism showing many mixed syndromes.

Before going into some of the disorders of the pituitary, it is neecssary to review the histology and physiology of the gland which is so very important when we come to the treatment of these conditions. Briefly, then, the hypophysis is composed of three distinct parts,[1] a posterior lobe or pars nervosa; an anterior lobe or pars anterior which is the gland proper, formed by epithelial cells arising originally from the buccal cavity; and a third part or pars intermedia which is divided into two parts. The function of the posterior lobe has to do with metabolism, maintaining blood pressure, increasing peristalsis and stimulating the sympathetic system generally, increasing mammary gland secretion, stimulating uterine contractions and, recently, has been credited with increasing the absorption of cerebrospinal fluid. The anterior lobe is supposed to control growth, especially skeletal. The pars intermedia is said to produce a diuretic hormone. From such a variety of functions we can readily see how a disturbed pituitary can produce very grave and intense general symptoms. We must not overlook the fact, however, that the other endocrine glands can partially compensate for pituitary deficiency. For instance, the thyroid can partially compensate for the connective tissue control and metabolism in skin, hair and joints.[2] At times other glands are so stimulated as to decompensate, so to speak, and the symptoms of this decompensated gland overshadow the real lesion or the stimulus producing gland so that to point out the gland that is primarily at fault is sometimes quite hard to do. As an example, if the adrenals were called upon to decrease the output of adrenalin to reduce an increased blood pressure caused by an overfunctioning of the pituitary, there probably would be a pigmentation of the skin due to a gradually deficient adrenal secretion, from which fact it would be difficult to diagnose a hyperpituitarism. On the other hand, we can readily see how a pigmentation of the skin could be caused indirectly by a hyperfunction of the pituitary. We frequently see low blood pressures in patients with a deficient secretion of the pituitary. On feeding these patients supra-renal extract, the blood pressure promptly rises as a rule. Bearing in mind this poly-glandular syndrome, I want to call your attention to some of the clinical signs pointing primarily to pituitary disturbance.

First, let us consider a new growth of the hypophysis. At first there may be symptoms of a hypersecretion due to the gland being stimulated by the tumor. But later there is a hypo-function due to the tumor pressing directly on the gland, giving rise to bitemporal hemianopsia and, as the tumor grows, there will be paralysis of the eye muscles with strabismus and pressure on the crura cerebri giving rise to pyramidal tract signs. As symptoms of intracranial pressure increase there are the general signs of brain tumor and, unless this pressure is relieved by surgery, the patient steadily goes blind. The systemic signs in such a condition are a lowered body temperature, a diminution of sexual activity, mental sluggishness, increased body weight and an increased tolerance for sugar. The accumulation of fat is especially prominent around the buttocks and breast. If the patient happens to be a child there are various degrees of infantilism, both physical and mental, and if a boy the mammary gland develops and the general contour of the body is that of a female. If the child is afflicted before the epiphyses have united, there is rapid growth of the long bones, increased growth of hair and increased sexual development. Should such a condition arise after the epiphyses have united, the long bones, of course, do not grow but there is seen an enlargement of the hands and feet and changes

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in the skull. Many of these patients will tell you voluntarily that they wear a size larger shoe or glove than they formerly did.

In the case of a simple hyperplasia of the gland, the patients' features are coarse, they have a broad face, the feet and hands are large, the chin is square, the sexual organs are overdeveloped, there is an early and diffuse growth of body hair, chiefly pubic and axillary, the eyes are wider apart than normal and the central incisors are spaced. There is usually a lowered sugar tolerance with traces of sugar in the urine. Increased fondness for sweets is frequent. If this occurs in a young child he may show a marked change in temperament, being disliked by his playmates. As this overfunctioning goes on there is a lowered mentality, the mental symptoms ranging from sluggishness to complete mental deterioration. After a time the gland, like an engine that is over-used, soon wears out, its secretion diminishes, and we have then to deal with a hyposecretion and there will be signs of a dyspituitarism, this being the third type about which I spoke at the beginning of the paper.

Under the head of dyspituitarism are incomplete types of giantism and acromegaly, some cases of adiposity and various epilepsies. These patients may have a subnormal temperature and are usually wakeful and irritable. The body hair is apt to be thin and fine and the skin smooth. In these cases also we may find a general status lymphaticus.

I want to cite a few cases to demonstrate different phases and conditions of pituitary disturbances. The first case is a male 22 years of age who came under my observation at the New York Neurological Institute. The family history is unimportant. He came to the hospital with the following complaint. Three years ago he fell from a pile of boxes to the ground, a distance of fifteen feet. He was unconscious for 86 hours, then was conscious for 15 hours and again unconscious for 96 hours. Then he remained well for two months. He went to bed feeling well in every way but the next morning he could not be awakened. He slept all day and at six o'clock that night he awoke of his own accord. For three and a half years he had these attacks at intervals of six weeks to two months, each attack lasting from twenty to forty-five hours. The only aftermath of his "nap" was a severe bitemporal headache which lasted four or five days. This patient was a tall man with large hands and feet, soft skin and a complexion of the peaches and cream variety. The genitals were very large but the pubic hair was of the usual male distribution. He was very timid and bashful, blushing deeply when asked about his sexual life. The neurological examination was negative except for quite active knee jerks. The blood and spinal fluid were negative. His Binet-Simon test was seventeen years. X-ray of the skull showed an enlarged sella turcica with prominent clinoid processes almost encroaching one upon the other. He remained in the hospital nearly ten weeks and improved considerably not having had an attack during his stay. He was given whole gland pituitary extract in fairly large doses.

This case was pituitary in nature as was partially proved by the therapeutic test. Cases of so-called narcolepsy are not so infrequent and all have to do with some pituitary disorder. Cushing[3] has shown that the anterior lobe is in some way associated with sleep. He[4] found, in his early experimental work of nearly total hypophysectomy in dogs, that animals after a few days passed into a lethargic state, with shallow respiration, low blood pressure, retarded pulse, low temperature and an insensitiveness to external stimuli, they not being aroused even by taking blood pressure readings from an open femoral. After hours or a few days they passed into a fatal coma. In later experimental work on hibernating animals, he found in animals killed during hibernation a pituitary gland very much diminished in size. Histologically the cells of the anterior lobe were small and vacuolated and had completely lost the characteristic staining reactions to acid and basic dyes. In his conclusions, he ascribes hibernation to a seasonal wave of pluriglandular inactivity. He cites a most interesting clinical case of a man with a tumor pressing on the pituitary and, in describing his symptoms, he says "not only did the patient pass most of the day in slumber but on several occasions he had prolonged sleep lasting several days from which he could not be aroused." Marshall Hall[5] years ago said that hibernation, day sleeping of animals with nocturnal habits, and natural sleep were different from one another only in degree. The pituitary has been held responsible by some for the lethargy in lethargic encephalitis.

The second case is a female 25 years of age

whose chief complaint is inability to keep awake, which complaint is of nine months' duration. She says, in describing her symptoms, "my eyes feel tired so that I have to close them and when I do I go to sleep no matter how hard I fight against it." She would fall asleep while taking dictation and dream and before she would awake entirely would write her dream in the dictation book. On one occasion she found the following incorporated in a letter which she had taken in shorthand, "a tall, good looking blonde lady in the office, who had left her white gloves." She complains of feeling good for nothing and sluggish. Has gained 22 pounds in nine months. She has an uncontrollable desire for sweets and eats about a pound of candy a week. The neurological examination is negative. The heart is normal, the pulse 90 and the blood pressure 122 systolic and 90 diastolic. Radiograph of the sella turcica shows a very small fossa with prominent clinoids which are almost in apposition. She was put on two grains of pituitary extract whole gland, three times a day, with one quarter grain of thyroid extract. Pituitary was later increased to eight grains a day. At the present time, three months after beginning treatment, the patient is apparently normal and has no complaints.

The third case is a boy of 16 years who has had convulsions for six months, at intervals of three or four weeks. The mother states that he is a bad boy of the street corner type who spends all of his money on cigarettes and at the soda fountain. He is backward in school, having reached only the fourth grade. The examination of the nervous system was negative. The boy had a large frame and there was no body hair. The tonsils were very much enlarged. The Wassermann was one plus with a cholestrin antigen which was disregarded. The sella turcica was small, irregular in outline, and the pituitary space was impinged upon by the unusually shaped clinoids. Since being under treatment he has had only one petit mal attack. Mentally he is much brighter, has stopped smoking and has gained fourteen pounds in two months. The entire make-up of this boy seems to have changed since he has been under observation.

This case is a female 22 years of age. The family history is unimportant except a half aunt developed a psychosis after the birth of a child. The mother says the patient sleeps poorly, awakes often and rambles about the house, is afraid to go to sleep alone in the dark, has many different phobias and has hallucinations of sight. The menses have always been irregular and very scant. She has never been a normal child and was taken out of school at the age of 15 because she was "nervous." The girl is very small, only four feet and three quarters of an inch in height and weighs 78 pounds. All of the teeth are in poor condition, the central incisors are spaced and blunt and the lateral incisors are somewhat small. Body hair is scant. She is infantile both physically and mentally. The blood Wassermann was negative. Radiograph of the skull shows a very small sella with encroaching clinoids. This patient has been under treatment for six months. During that time her menses have been normal in every way, she is very much brighter mentally, sleeps much better, does not have hallucinations and is taking a marked interest in all types of reading matter, which her mother says she has never done before. The parents are very much pleased with her progress.

In conclusion I wish to call your attention to a polyglandular syndrome first described by Dr. Timme of New York. The chief symptom of which the patient complains is great fatigability, so that he is called a lazy and good-for-nothing individual. On examination one usually finds a large well-developed muscular patient with scant body hair and, if a man, female distribution of pubic hair, a low blood pressure and the white suprarenal line of Sergent. Radiograph of the sella turcica will show some alteration of its contour. Upon feeding these cases glandular extracts the results are almost miraculous in many cases. When the feeding is stopped all of the old symptoms return. A number of these cases were encountered in the army and after a short study were made useful soldiers for domestic service.

The success gained in treating endocrine disorders depends on recognizing early the glandular disturbance and pointing out the primary gland at fault. In the case of the pituitary, there should be a clear distinction between local signs of tumor due to involvement of structures around about the gland and systemic disturbances due to alteration of its secretion.

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310 *Taylor Building.*

A NEGLECTED METHOD OF TREATMENT FOR ULCERATIVE CYSTITIS IN THE FEMALE.*

By ALFRED P. JONES, M. D., Roanoke, Va.

The study of cystitis is one that is of unfailing interest to the general practitioner, the surgeon, and the urologist alike, because of its frequency and because its control occasionally is difficult. The varieties and degrees of cystitis are numerous, and it is not within the province of this brief report to attempt a classification. The treatment of cystitis is as old as the practice of medicine, and the number of methods and remedies advocated rivals the "fifty-seven varieties." Every one is well acquainted with the fact that silver salts have proved to be the most efficacious of local antiseptics and that, of these, the first used, silver nitrate, still maintains its pre-eminence as the most valuable for general use.

Even ante-dating the local antiseptic treatment, irrigation of the bladder with sterile water or other bland solutions enjoyed much popularity. To whom belongs the credit for introducing this most familiar of bladder treatments, it is impossible to say at this late date, but one will, perhaps, be safe in awarding the palm to Hippocrates or Galen.

With the advent of the two-way return-flow catheter, continuous irrigation became popular because of its obvious advantages, but in spite of the fact that all text books occasionally mentioned it and some commended it warmly, the writer feels that its real value in severe cystitis is not yet recognized. This report is presented with the hope that the method will be more frequently employed.

* Read before the Tri-State Medical Association, February 18, 1920, at Charlotte, N. C.

The cases here reported are only two in number and may be classified as chronic ulcerative cystitis. The type is a well-known and very familiar one and is characterized by constant pain, burning and tenesmus, with pyuria and hematuria as most marked symptoms. Cystoscopic examination shows an intensely red, injected bladder mucosa with ragged ulcers of varying sizes, which bleed freely on the slightest touch. That the condition is a serious and obstinate one is evidenced by the fact that the formation of a vesico-vaginal fistula for the purpose of putting the bladder entirely at rest has been advocated, and the writer has seen two cases so treated, it may be added, with rather unsatisfactory results.

The first case, Mrs. I. W., married, twenty-six years old. First seen on December 18, 1917. She gave a typical history as above described. The trouble had been present for three months. The symptom which had most alarmed the patient was the frequent hematuria. At the time of examination the urine was deep red in color and the microscope showed it to be loaded with red cells and to contain a considerable amount of pus. Cystoscopic examination showed an acutely inflamed bladder mucosa and four or five shaggy ulcers, the largest—in the left fundus—being about the size of a quarter. The ulceration did not involve either ureteral orifice and both orifices were normal in appearance, with the exception of the fact that they shared in the general cystitis. As there were no symptoms pointing to kidney disease, it was thought best not to catheterize the ureters through the infected field. The probability of a tubercular origin of the ulcers was first considered, but this was definitely ruled out by repeated smears from the ulcers and from the urine sediment as well as by cultures. The colon bacillus was the only organism found and it was constantly present. The patient was treated with the usual applications of silver nitrate up to ten per cent, applied to the ulcer by means of the open air cystoscope, followed by a bladder instillation of two ounces of one to five hundred silver nitrate.

This treatment was persisted in for four weeks without improvement either in the patient's symptoms or the cystoscopic picture. By this time the patient naturally became a little dissatisfied. She was referred to a urologist in Baltimore, Maryland. After a cystoscopic examination, he sent her back to me with the advice that a vesico-vaginal fistula be made and continuous irrigation instituted. This the patient refused. Therefore, as a substitute measure, she was put to bed in the hospital, and, for three hours in the morning and three hours in the evening, a continuous irrigation of sterile water was given through a metal two-way catheter. She was also urged to drink as much water as possible, but no antiseptics were given. Cystoscopic examination showed at the end of the first week a clearing up of the general cystitis, but no visible change in the ulcers; at the end of the third week, considerable improvement in the ulcers; and, at the end of the fifth week, a complete healing of all the ulcers with normal bladder mucosa covering their sites. The patient has been heard from several times since discharge from the hospital, the latest report being about two months ago, and she has had no return of the trouble over this period of about two years.

The second case, Mrs. M. G. Married. Age 40 years. Was first seen on September 24, 1919. She gave a history of a severe cystitis and examination of the urine showed a large amount of both pus and blood. Cystoscopic examination showed a marked cystitis with ulcers about the size of a dime and small spots of early ulcers in the neighborhood of both ureteral orifices. Smears and cultures showed the presence of the colon bacillus. The patient was admitted to the hospital and put on continuous sterile water irrigations three hours in the morning and three hours in the evening and water forced by mouth. No medication. At the end of fifteen days cystoscopic examination showed healing of the ulcers and disappearance of the general cystitis. The patient was seen a few days ago and reports entire relief of symptoms.

From the results obtained in this very limited number of cases, the following conclusion seems warranted. Continuous irrigation of the female bladder with sterile water by means of a two-way catheter is a simple and harmless procedure and is of great value in certain cases of severe ulcerative cystitis.

Jefferson Hospital.

A CASE OF EVENTRATION OF THE DIAPHRAGM.

By W. ALLAN, M. D., Charlotte, N. C.

Eventration of the diaphragm, sometimes known as dilatation, insufficiency, "hochstand," or elevation of the diaphragm, denotes a condition in which half the organ is thinned out and distended, rising high into the thoracic cavity with corresponding upward displacement of the abdominal viscera on the affected side. There is no break in continuity as in diaphragmatic hernia.

The subject has been well reviewed in our literature by Sailer and Rhein[1] in 1905 and particularly by Bayne-Jones[2] in 1916, so that no extended review will be given here. The latter collected 45 cases, only four of which had been reported from this country. Aronson[3] reported a case in 1918 which, with the present case, makes a total of 47 cases. In four instances the right side was affected, in forty-three the left. Eppinger[4] has shown that the ratio of eventration to hernia of the diaphragm is about 1 to 37.

Cruveilhier[5] considered the condition secondary to disease of the phrenic nerve, of the diaphragmatic muscle, or abdominal disease, causing unequal pressure on the two sides of the diaphragm; but most subsequent observers have adopted Thoma's[6] view, that eventration is an anomaly caused by defective development. Bayne-Jones points out that pregnancy, the commonest cause of abdominal distention, has not been associated with this condition (only 8 out of 43 adults were females); that it has been found in four fœtuses or young children, and that in nine of the forty-five cases, which he reviews, other developmental anomalies were present. Aronson's case had Hirschsprung's disease, and the case

here cited had bilateral inguinal herniae.

Post-mortem examination has shown the affected half of the diaphragm reduced practically to a thin fibrous sheet with almost no muscle tissue remaining. The dextro-cardia, which has heretofore invariably been found, in eventration of the left side has generally been attributed to mechanical displacement of the heart and mediastinum by the bulging up of the diaphragm. Sailer and Rhein take issue with this view, showing that the elasticity of the right lung is more important, and citing a number of cases of displacement of the heart to the left with hypoplasia of the left lung, both with and without elevation of the diaphragm. In the present case the heart was not displaced to the right but directly upward.

The left lung is not compressed, being only partially developed, at times showing incomplete division into three lobes. The development of the thoracic walls is normal. Below the diaphragm, developmental anomalies of the colon and mesentery have been found with a varying amount of upward displacement of the abdominal viscera.

These cases may have no symptoms referable to the diaphragmatic condition; some have cough and dyspnea, probably due to cardiac displacement; others have gastro-intestinal symptoms.

On physical examination, lagging of the left side with displacement of the apex beat will be seen. The lower left chest is usually tympanitic with absence of breath sounds, fremitus, and Litton's sign. In Sailer and Rhein's case the lower left back was dull because of an enlarged spleen. In the present case, the lower left chest was dull, possibly from the same cause or from a preceding tubercular pleurisy.

The Roentgenological examination has been well set forth in Becker's[7] article. When the distended stomach fills the left lower thorax, the clear area is free from the usual pulmonary markings and its upper surface is bounded by a smooth elliptical line. Fluoroscopic examination shows this line to be the diaphragm, which during respiration may reveal the left half contracting normally or paradoxically.

Eventration is apt to be mistaken for hydropneumothorax and needled, and the differentiation between eventration and hernia of the diaphragm is at times extremely difficult.

Case Report.—A real estate agent, aged 31, single, was referred for examination, February 7, 1916, by Dr. R. L. Gibbon. His mother had died at 51 of stomach trouble; a brother, who had had no disease, had never been strong; two brothers had died in infancy. The patient at the age of seven had nearly died with dysentery lasting a month. No other illness until the age of 24, when he had a fever of ten days' duration, called malaria. Had no chills with this, but during this fever developed a cough, which he has had ever since. Five years ago took a cure for alcoholism, and has abstained since. Chews and smokes. Had gonorrhea and venereal herpes some years ago. Two years ago had a nervous breakdown and stayed in bed two months. Four years ago, after cranking his car, felt a sharp pain in right lower abdomen, and found he was ruptured slightly on both sides.

At present, complains of general weakness; walking up hill brings on dyspnea and cough and at other times pain over sternum. If he leans forward and coughs, the upper abdominal muscles, at the costal margins, will contract violently, leaving lumps which he has to massage until they disappear. Coughs some at night and on rising, and brings up an ounce or more of purulent sputum in the morning. No night sweats in four years. Has dumb chills in spring and fall and on damp days, with enough fever to make him sit close to a stove. Before his fever seven years ago, he weighed 135 pounds, and now weighs 105 pounds. Appetite good. Sleeps very poorly, averaging three hours a night. No gastro-intestinal or genito-urinary symptoms. His cough, dyspnea, weight, and weakness have not varied much in the past seven years. He takes no exercise, has few amusements, works steadily and worries a great deal.

PHYSICAL EXAMINATION.—A small, weak, pale, thin man. Eyes and throat normal. Epitrochlear and left posterior cervical glands enlarged. Skin dry and looks transparent. CHEST.—The lower left side seems smaller than right and lags on respiration. The right side is hyperresonant throughout, with small moist rales under middle third of scapula behind. The resonance over the upper third of the left side is considerably less than on the right side, but has no tympanitic quality. The lower half of the left front is tympanitic; the lower two-thirds of the left axilla and the lower half of the left back are flat. Breath sounds harsh and broncho-vesicular over upper half of left side, absent below. No rales. Voice sounds and tactile fremitus absent over lower half of left lung. Abdomen flat, nowhere tender, thin walled; liver dulness normal and spleen not palpable. Both inguinal rings are weak and stretched with small incomplete herniae, direct on the right, oblique on the left. The femoral rings bulge considerably on coughing. Extremities and genitals normal. Superficial and deep reflexes normal. Joints normal; there is a moderate spinal curvature with apex opposite the left scapula; this does not modify the mobility of the vertebral column.

Apex beat in midclavicular line, third interspace, left. Heart size and sounds, rate, and rhythm normal. Blood pressure 118/80.

LABORATORY EXAMINATIONS. — Haemoglobin 75%. White count 14,800. Polynuclears 72%, lymphocytes 17%, large mononuclears 7%, eosinophiles 2%, basophiles 2%. Red count 4,800,000. No plasmodia. Shape and staining reaction of red cells normal, some variation in size. Wassermann strongly positive.

Urine acid, 1023, negative for albumen, sugar, indican; microscopically negative.

Feces negative for eggs and protozoa.

Sputum showed tubercle bacilli.

ROENTGEN EXAMINATION. — The plates showed on the right side a tubercular focus below the right apex, corresponding with the moist rales heard in this area. The left side showed over the lower half of the chest a uniformly dense shadow bounded above by a smooth curved line, level with the sixth rib behind and fourth in front. The heart shadow was high and largely behind the upper end of the sternum. (The Roentgenograms were made by the late Dr. J. W. Squires and unfortunately destroyed after he entered the army.)

Under the impression that this was a left pleural effusion, the left back was needled, but no fluid obtained. The needle, inserted in several places, seemed to be always in solid tissue. A fluoroscopic examination now demonstrated that the smooth upper border of the left chest shadow was the diaphragm, which could be seen contracting normally on inspiration. The cardiac contractions could be seen above this, from the third interspace to the sternal notch. Gastro-intestinal plates revealed no abnormality and a corrected diagnosis of eventration of the left side of the diaphragm was made. The patient died a year or so later from pulmonary tuberculosis.

The two unusual points in the case were the displacement of the heart directly upward, and the dulness in the left lower back and axilla, which may possibly have been due to an enlarged spleen as in Sailer and Rhein's case, or to a previous tubercular pleurisy.

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A BRIEF ANALYSIS OF THE ANATOMICAL DIAGNOSES OF 699 AUTOPSIES OF PATIENTS DYING OF TUBERCULOSIS.*

By WYNDHAM B. BLANTON, M. D., Richmond, Va.

A review of 699 autopsy protocols of tuberculosis from the Pathological Department of Bellevue Hospital, New York City, brings

* From the Pathological Laboratory, Bellevue Hospital, N.Y.C.

TABLE: 699 AUTOPSIES ON TUBERCULOUS PATIENTS ANALYZED ACCORDING TO ASSOCIATED LESIONS AND THE TYPE OF PULMONARY DISEASE.

COMPLICATIONS	CHR. PUL. TBC.		AC. PUL. TBC.		GEN. MIL. TBC.		TOTAL	
	NO.	%	NO.	%	NO.	%	NO.	%
Intestines	159	39.5	54	35.7	45	31	258	37
Lymph Glands	75	18.6	31	20.5	65	44.5	171	24
Spleen	24	5.9	23	13.9	68	46.5	105	15
Liver	27	6.7	16	10.6	56	33	99	14
Kidney	27	6.7	12	7.9	48	33	91	13
Meninges	19	4.7	11	7.2	55	38	85	12
Peritoneum	13	3.2	2	1.3	37	25.3	52	7
Pericardium	23	5.7	6	3.9	16	11	40	5.5
Brain	3	.7	4	2.6	26	18	33	5
Larynx	22	5.4	3	1.9	5	3.4	30	4
Prostate	7	1.4	4	2.6	5	3.4	16	2
Bone	2	.5	11	7.2	3	2	16	2
O. M. P. A.	8	1.9	0	.0	3	2	13	1.8
Epididymis	5	1.2	1	.6	6	4	12	1.7
Seminal Vesicles	7	1.4	2	1.3	2	1	11	1.5
Appendix	6	1.3	1	.6	0	.0	7	1
Adrenals	3	.7	4	2.6	0	.0	7	1
Ureter	4	.9	2	1.3	1	.7	7	1
Bladder	1	.2	3	1.9	13	9	7	1
Heart	1	.2	5	3.2	0	.0	6	.9
Ovary	3	.7	0	.0	1	.7	4	.6
Cholangitis	1	.2	0	.0	3	2	4	.6
Tubes	3	.7	0	.0	0	.0	3	.4
Stomach	2	.5	0	.0	0	.0	2	.3
Uterus	1	.2	0	.0	1	.7	2	.3
Testicles	0	.0	0	.0	2	1	2	.3
Pancreas	0	.0	0	.0	1	.7	1	.1
Thyroid	0	.0	0	.0	1	.7	1	.1
Thymus	1	.2	0	.0	0	.0	1	.1
Thoracic Duct	0	.0	0	.0	1	.7	1	.1
Endocardium	0	.0	0	.0	1	.7	1	.1
Vas Deferens	1	.2	0	.0	0	.0	1	.1
Chest Wall	1	.2	0	.0	0	.0	1	.1

forcibly to light certain important facts connected with this disease and its complications.

The table shows at once the predilection of tuberculosis for certain organs.

The intestines easily head the list. Of the 699 tuberculous patients autopsy revealed 258 or 37% with intestinal lesions. That this extremely high incidence of intestinal tuberculosis is not recognized ante-mortem is proved by the clinical records of a single ward which has admitted during the last four years 2,772 tuberculous patients. Among this large number of patients only twelve cases of tuberculous enteritis are recorded. Several explanations are apparent. In the great majority of cases tuberculous enteritis is a quiescent complication. Even when it is not, the physician often fails to heed the patient's complaint of abdominal pain and diarrhea. Inquiry about the bowels should never be omitted in cases of pulmonary tuberculosis. Much can be done for the patient's comfort by the early recognition of this complication.

That the lymph glands and the intestines head the list of the complicating lesions of pulmonary tuberculosis is not strange when the relation of these two organs to the disposal of the tubercle bacillus is borne in mind. The filtering function of the lymph nodes explains the arrest of the tubercle bacillus here, and the constant swallowing of infected sputum gives the intestinal mucosa little chance of escaping infection.

The high percentage of tuberculosis of the spleen, liver, kidneys and brain is due to the fact that many cases of miliary tuberculosis are included in the list. The tendency of these organs to focalize the organism during a tuberculous bacteriemia is well known to every pathologist. Exclusive of the blood stream type of disseminated tuberculosis, the incidence of tuberculosis in these organs was much lower (.9% to 7%).

There were 52 cases or 7% of peritonitis.

This calls attention to another important complication often overlooked. That peritonitis is many times not discovered during life is shown by the fact that of the 2,772 cases referred to above only 16 were recorded as having this complication. The signs of peritonitis in a dying patient are very illusive and many of these signs develop only during the latter days of illness. One should daily inspect the abdomen of a patient with tuberculosis.

Laryngitis occurred in 4% of these cases. It is interesting that the clinical records above referred to accord exactly with this figure. Tuberculous laryngitis is too distressing a complication to be missed even by the clinician. More recently a careful routine laryngoscopic examination of tuberculous patients was undertaken, and a much larger percentage of tuberculous laryngitis was discovered. This complication has been variously reported as occurring in from 5 to 85% of all cases of pulmonary tuberculosis.[1] The incidence is in all probability proportional to the diligence with which search is made.

The above table shows the incidence and distribution of tuberculosis of the genito-urinary tract in patients dying of pulmonary tuberculosis. Among these 699 autopsies on tuberculous patients there was not a single instance of genito-urinary tuberculosis occurring in the absence of pulmonary tuberculosis, whereas Braasch[2] in a clinical analysis of tuberculosis of the kidney at the Mayo Clinic reports in 346 cases of renal tuberculosis 71% with lesions elsewhere, of which only 28% showed pulmonary involvement. Renal tuberculosis occurred in less than 5% of his cases with pulmonary tuberculosis.

These figures make essential the examination of the chest of all patients suffering from chronic genito-urinary infection of undetermined nature. A negative X-ray, sputum and physical examination should bear strongly in the evidence against such an infection being of tuberculous origin.

The low percentage of genito-urinary tuberculosis found among this series of autopsies is not in accord with clinical experience, many cases of tuberculous epididymitis, for example, being seen yearly in the tuberculosis wards of Bellevue Hospital. Among some 1,100 admissions to the genito-urinary service last year, there were 42 cases of tuberculous epididymitis alone. It has seemed to us that the type of tuberculous patient with foci outside of the lungs, such as in the genito-urinary tract, was somehow more resistant to the inroads of the disease. This very resistance to this type of the disease may explain why relatively so few are encountered at autopsy..

Finally, there is a group of organs such as the pancreas, thyroid, uterus, testicles, endocardium and stomach in which the tubercle bacillus rarely lodges. This is an old observation, but one well worth remembering in considering the etiology of disease in these organs.

SUMMARY.

The anatomical lesions of fatal tuberculosis as disclosed by this series of autopsies are many and varied. The disease shows a distinct preference for certain organs and rarely if ever occurs in others. The lungs, intestines and lymph glands attract the tubercle bacillus far more frequently than other organs. In the cases here reported genito-urinary tuberculosis was always associated with pulmonary involvement.

300 *West Grace Street.*

1. Mullin, W. V., J. A. M. A., Vol. 75, pg. 300, 1920.
2. Braasch, W. F., Am. Jour. Med. Sc., Vol. 159, pg. 8, 1920.

COMPLETE ABRUPTIO PLACENTAE IN THE TWENTY-NINTH WEEK OF PREGNANCY; MANUAL DELIVERY; RECOVERY.*

By VIRGINIUS HARRISON, M. D., Richmond, Va.

Abruptio placentae is a term given by DeLee to designate "premature separation of a normally situated placenta" so that it will correspond with placenta previa, the former causing "accidental hemorrhages," the latter "unavoidable hemorrhages." The abruption may be complete or only partial. It may occur at any time during pregnancy or labor. It causes a high rate of mortality in both mothers and children, the complete variety destroying more than 50 per cent. of the mothers and 95 per cent. of the children. The incomplete variety is more favorable for both mother and child.

The causes are not definitely known, but albumen is found in about 70 per cent. of the cases, and eclampsia, nephritis or some form of toxemia can usually be found; a short cord or one around the child so as to make it rela-

* Read at a meeting of the Richmond Academy of Medicine and Surgery, April 27, 1920.

tively short may detach the placenta during delivery.

The direct diagnosis is made by abdominal examination, vaginal examination and the clinical symptoms. Briefly, the patient feels colicky pains in one side of the uterus with a tenseness of the abdomen; these pains are not like labor pains, necessarily. She soon feels weak and may show symptoms of shock and anemia. On making an abdominal examination we find the uterus larger than it was before the illness; the fetus is outlined with difficulty; the heart-sounds not heard—all due to bleeding into the uterine cavity.

The vaginal examination usually reveals some bleeding, though this may not be present; and there is inability to detect the placenta in the lower portion of the uterus, though a clot may simulate it. This examination will also inform one if the cervix is dilated or closed.

As abruptio placentae is most often treated for placenta previa, the differential diagnosis is important, as the methods of management of the two are entirely different. In placenta previa, we have a causeless, painless hemorrhage, with bleeding from the vagina, the severity of the symptoms corresponding with the external bleeding. The placenta may be felt in the lower segment of the uterus. On abdominal examination the outline of the fetus can be made out, the fetal heart can be heard, and the uterus will feel as a normal pregnancy; but in abruptio placentae we can rarely outline the fetus or hear the heart-beat; and the uterus is full, tight and painful to the touch. The clinical symptoms are more serious than the amount of external bleeding leads one to expect.

Abruptio placentae is said to occur more frequently in multiparae, but both of my complete cases have been in first pregnancies.

The treatment will depend upon the condition of the cervix and the gravity of the constitutional disturbance.

With an uneffaced cervix and an os not easily dilatable, and with urgent clinical symptoms, the abdominal cesarean section will offer the quickest and safest procedure, and will sometimes save the life of the baby; and if the uterus does not stop bleeding after its contents have been removed, extirpation of that organ can easily be done.

If the abruption comes on during labor, and especially is this true when only partially separated, we can often save both mother and child by hastening the delivery.

I have only briefly outlined abruptio placentae, having recently read a paper on this subject before the Medical Society of Virginia, which was published in the Virginia Medical Monthly, March, 1920. In that paper I reported a case of complete abruption in the thirty-fifth week of pregnancy in which recovery followed a cesarean section. I now wish to report a complete separation in the twenty-ninth week of pregnancy, delivery being made per vaginam.

Mrs. C. R. D., white, age 37, married one year, has had no miscarriages or other evidences of uterine disturbance. Her menstruations were regular at twenty-eight day periods, lasting three days. September 15, 1919, was the date of her last menses. The history as gotten from the Sheltering Arms Hospital was as follows: She was referred to the hospital by Dr. Redd. The patient was taken sick on Thursday, April 1st, about noon. She felt very weak and bad; about 6 P. M. she had intermittent cramps in the right side of the uterus and abdomen, and external bleeding about this time. The pain was so severe that Dr. Redd administered morphine. On the 2d and 3d of April she had very little pain and almost no bleeding. On April 4th she had severe pains, somewhat like "labor pains," with very little bleeding. On Monday, April 5th, she was brought to Richmond and admitted to the Sheltering Arms Hospital. Some bleeding occurred and there were regular labor pains during her removal to the hospital.

I saw the patient at about 1 o'clock, and upon making an abdominal examination, was so struck with the inability to outline the fetus and the tenseness of the abdomen, that I had her prepared for delivery without making a

vaginal examination as, if it should turn out to be placenta previa (which I doubted from information gained on abdominal palpation), I wanted to be prepared to control hemorrhage.

Vaginal examination disclosed the cervix to be entirely effaced; the os soft and easily dilated, and a clot was just inside the os. I inserted one finger in the os, and by Harris's method, in thirty minutes I had the os completely dilated. I then ruptured the bag of waters, and found the breech presenting. With a little traction on a foot, the uterus soon expelled a macerated fetus, apparently of about five months. I did not wait for the uterus to expel the placenta but removed it manually, which presented no difficulties, as it was completely detached. About half of a pint of old dark clots was removed from the uterus; there was no fresh bleeding at all, greatly to my surprise.

The placenta was covered, with the exception of a space of the size of a half dollar, with an old clot about a half inch thick and very black. The placenta was made up of numerous infarcts of varying degrees of thickness and color, indicating that this woman had had numerous hemorrhages into her placenta, until the fetus got so little nourishment that it did not grow to its full size. It also showed that thrombosis had taken place to such an extent that nature was enabled to stop the bleeding from the remaining sinus left. Had not this been the case I do not believe the woman would have lived from Thursday to Monday and then been able to take a six-mile drive in an automobile on such roads as we have around Richmond.

The patient has recovered and gone home, a little anemic but on a fair road to being a well woman. She had no elevation of temperature and very little lochia, but urinalysis showed a slight nephritis.

Both of my cases had a negative Wassermann; both of them were primiparae, and both had been married but a short time.

401 *North Allen Avenue.*

COMPLETE CIRCUMCISION IN CHANCROID BENEATH TIGHT PREPUCE AND MULTIPLE CHANCROIDS ON PREPUCE.*

By SAMUEL NEWMAN, M. D., Danville, Va.

The conservative text-book treatment in cases of chancroids situated beneath a long, tight prepuce, which cannot be retracted, is subpreputial irrigations with an antiseptic solution. When the chancroidal area beneath the prepuce is considerable, a dorsal, or two lateral incisions through the foreskin is advised, thus exposing the chancroids for inspection and local treatment.

The objection against complete circumcision in cases of multiple chancroids on the foreskin seems to be based on two considerations. First, the fear of lymphangitis; second, the fear of adenitis. The possibility of phagedena as a result of excising the chancroids is also stated. Theoretically, it is only true that in circumcision the lymphatic channels are laid open to the chancroidal virus or secretions as a result of which the lymphatic vessels may become hot, red, and very painful, and by the same process the septic material may pass to the glands in the groin, thus constituting a chancroidal "bubo."

However, management of chancroidal infections in the Clinic found conservative treatment inadequate and a too lengthy procedure. Since in the Clinic type of patient rest and quiet could not be insisted on, the prepuce was nearly always found to be edematous and tight and in many cases presented actual phimosis. In some cases patients with chancroidal infection would not return for daily treatments and, upon their next visit to the Clinic, the prepuce was found bathed in offensive secretions, irreducible and, occasionally, gangrenous. Proper compliance with directions for home treatment could also not be expected of that class of patients.

In cases of subpreputial chancroid where it could not be easily retracted, and in all cases of multiple chancroids around the preputial margin with profuse secretion, the plan of complete circumcision was adopted. The procedure was as follows: The penis was bathed in hot bichloride of mercury solution. A two per cent solution of novocain was used to produce local anesthesia and circumcision done in the usual manner. Catgut or plain silk was

*From the U. S. Government Clinic for Venereal Diseases.

used in interrupted suture. On the third day the patient was instructed to come to the Clinic for dressing. In all cases there was a great deal of edema about the penis. In a series of nine cases not a single one developed lymphangitis or adenitis. In one case circumcision was done several days after a bilateral inguinal adenitis had developed. In eight out of nine cases the line of suture became infected, but no sloughing occurred in a single instance. Usually the sutures would come out on the third or fourth day. Healing took place by secondary intention without undue scar formation or irregularity, the wound being treated every day or every other day. The shortest time it took to heal was eleven days, in one case of five preputial chancroids; the longest time was five weeks, in a case of three chancroids beneath a gangrenous prepuce. One patient was very anemic and probably tubercular, yet no phagedena followed the removal of many foul chancroids by circumcision.

Conclusion: In cases of multiple chancroids on a long prepuce where rest in bed cannot be insisted on, and in cases of chancroids beneath a tight prepuce where a dorsal or bilateral incision is indicated, complete circumcision will follow with no bad results and it will probably shorten the time required for treatment by the conservative method.

INDICATIONS FOR AND TECHNIC OF CAESAREAN SECTION.

By M. J. PAYNE, M. D., F. A. C. S., Staunton, Va.

The term Caesarean section (laparohysterotomy) is applied to the operation which consists in the extraction of the child through an abdominal and uterine incision. The terms vaginal Caesarean section and suprapubic Caesarean section are well understood and call for no special definition.

The indications for this operation are of three kinds, positive, relative, and elective.

1. Whenever the maternal or fetal dystocia is so great that it is impossible to remove either the living or dead fetus through the natural passages.

2. Whenever it is impossible to remove the living child through the natural passages. Embryotomy or craniotomy should be made illegal.

Relative indications for the operation of Caesarean section are somewhat broader and are not so clearly marked and defined as the positive indications, and are:

a. Whenever fetal delivery cannot be done successfully without inflicting great trauma upon the mother in the presence of a dead child. It is believed that the living child should never be purposely destroyed either by craniotomy or embryotomy; that no operation or method of delivery should be employed in which such forcible means of delivery would be employed as would endanger the life of the child and the life of the mother to a greater extent than Caesarean section.

b. Whenever a conjugate diameter is presented of three inches (7.62 cm.) with a living child, and two and five-tenths inches (6.35 cm.) with a dead child, the best operators agree that Caesarean section is the better procedure.

c. Pelvic deformities probably present the commonest indications for this mode of delivery.

d. Pelvic tumors of any kind.

e. Cervical atresia and malignancy of the cervix with the coexisting infection demand Caesarean section.

f. Eclampsia, placenta, praevia, and specific infections of the genital tract.

g. Abnormal development of the cervix, incapable of safe dilatation, either by natural or forcible means.

h. Osteomalacia.

i. Monstrosities, utero-fetal adhesions.

The elective group of indications for Caesarean section is broad and broadening each day. The child is often the greatest sufferer (Hirst) at the time of birth, and it may well be pointed out that the effects of injuries at birth are of great economic importance. In many instances, the child injured at the time of birth becomes a helpless afflicted dependent. Snow's statistics, based on almost a million and one-half births, show that two hundred and fifty thousand infants are lost annually in the United States during the first four weeks of infant life. Few subjects, then, are of greater importance, not only to the medical profession but to the people, than the question of obstetric education. The unskillful practice of obstetrics emphasizes, therefore, the urgent necessity for better education of obstetricians, and a more careful consid-

eration of the important elective group of indications for Caesarean section.

Lapthorn Smith (B. M. J.) believes that many of the lives lost by the "wait-and-see" method of treatment of eclampsia would be saved by prompt action. It is believed, also, that the same is true of placenta praevia. It is urged that all cases presenting for obstetric care should be carefully studied. Careful case histories should be obtained, proper examination of the urinary output made with renal tests in all doubtful cases, accurate pelvimetry, and fetal measurements or estimation (fetometry) be made. Fetal position should be carefully observed in all cases, and the absence or presence of placenta praevia should be confirmed by careful examinations. Obstetric judgment is difficult and much experience and study is necessary in order to gain sound obstetric judgment which is the best guide for the determination of any elective Caesarean section. A case should not go through the "test of labor" before determining the wisdom of resorting to Caesarean section. In all cases where one feels the necessity for waiting for "the test of labor," elective Caesarean section should be chosen. Five hundred and fifty cases, without a death, reported recently by one author, where the Caesarean was done within one hour after the first convulsion in eclampsia, demonstrated this operation to be one of the safest abdominal operations of modern times. All procedures, therefore, included under the term accouchement force as well as vaginal Caesarean section, pubiotomy, symphyseotomy, craniotomy, and embryotomy, must be discarded in favor of the simple, safe, and more easily carried out operation of modern abdominal Caesarean section.

The technique of Caesarean section may be carried out with but slight trauma to the mother, and with great safety to the child. The various methods of accouchement force (that is forceps, version, craniotomy, embryotomy) are all attended by more or less violence or trauma to the mother, and, likewise, are accompanied by injuries to the child resulting in immediate death of the child or rendering the child helpless by reason of some condition brought about by the trauma incident to the delivery and persisting after the birth. The slighter injuries resulting from the various methods of accouchement force may affect the child remotely and give rise, in later life, to psychoses or mental and physical impairment not heretofore understood to be attributable to the injuries received at the time of birth. The writer, therefore, believes that the obstetric surgeon should choose Caesarean section in all doubtful cases rather than wait for the test of labor and then be compelled to resort to ill-advised or unadvisable methods of delivery.

The presence of physiological incompetence for labor is usually seen in those considerably beyond the usual age of primiparous women and are of the neurotic type, poorly nourished and presenting definite tissue changes more noticeable in the cervix and uterus. The patients, as a rule, have married rather late in life and are overweight, and give a history of abnormal menstruation, and some, also, show derangement in the formation of the internal secretions. The most striking evidence in the cases is the failure of the uterus to cause the child to descend in the last few weeks of pregnancy. One will find, in this class of case, that the uterine contractions are so slight as to be almost unrecognizable. A pathological condition of the uterine muscles or of the nerve supply may exist, and one cannot be sure of the existence of such a pathological condition by any ordinary examination. The use of pituitrin in this class of cases will be attended by great danger to the mother and disappointment to the obstetrician. Kosmak states, in a paper entitled "Conservative Treatment of Placenta Praevia," that, in a primipara presenting a rigid and only slightly dilated cervix, and the probability of a central placenta praevia, with the child at or near term and still in good condition (because the amount of bleeding has not been extreme) there is no question but that the abdominal Caesarean section offers the best method of delivery for the mother and the fetus. The elective Caesarean section should be carefully considered in all known cases of placenta praevia, for the reason so often expressed or experienced by obstetricians, that the hemorrhage may become, in a moment, alarming,—indeed, often fatal.

In the primiparous showing a slightly contracted pelvis, a large fetus, a lack of develop-

ment of the uterus, a physiological incompetency for labor, the obstetrician should not hesitate to elect Caesarean section, provided a competent operator is at hand. Likewise, the elective Caesarean section should be chosen whenever faulty positions of the child cannot be corrected and followed by safe delivery by the forceps or by version.

Davis states that "recovery from elective Caesarean section is often more speedy and complete than after a fatiguing and tedious labor. Mortality is no greater than after any other operation of equal importance."

Finally, the patient may be sterilizd, if such a course is considered advisable, and should indications exist for more radical surgery, e. g., removal of the uterus or the tubes and ovaries, the indicated operation may be completed without any added hazard.

TECHNIQUE.

The preparation for elective Caesarean section should include careful history taking and complete physical examination, including the blood, urine, and renal function tests.

The immediate preparation for the operation differs in no essential particular from that of any other abdominal operation.

1. The abdomen is opened through an incision in the mid-line, extending from one inch above the symphysis upward to not more than one inch above the umbilicus. Although the uterus is in front of the intestines, the usual care should be exercised in opening the abdomen not to wound the intestines.

2. The general abdominal cavity is protected by well placed towels wrung from warm salt solution, and the uterus is now opened by an incision in the mid-line of the anterior wall, extending from the contracting ring upward for about six inches. No haste is made and none is required, in making this incision as it is far better to proceed carefully, seizing the bleeding uterine vessels cut, and advancing until the cavity of the uterus is opened. The membranes may, in this way, be preserved until added towels are placed and the amniotic fluid may be absorbed, thereby preventing any fluid entering the abdominal cavity. At the moment the membranes are ruptured, an assistant should make firm and equal pressure on the fundus of the uterus in order to hold the uterus firmly against the abdominal wall.

The operator now inserts the hand into the uterus and preferably causes the fetal head to present at the incision while, at the same time, the assistant should make firm pressure through the abdominal wall upon the uterus and in this way assist in the expulsion of the child from the uterus. Care should be employed not to tear the uterine wall, as an irregular tear is difficult to close.

The child delivered is handed to an assistant. A few moments should now pass in order that the child may receive ample blood before the cord is clamped, cut, and then tied by the assistant.

Delivery of the placenta is accomplished by pressure through the abdominal wall directed against the fundus of the uterus and by very gentle and careful traction on the placenta or manipulation on the part of the operator. In case of the placenta praevia, the hand must be passed into the uterine cavity and the placenta carefully pushed away from its attachment avoiding any traction or pulling. This part of the operation should be gently and very carefully carried out.

The incision in the uterus is now closed by carefully placed interrupted stitches of chromic catgut No. 2, in three tiers: the first tier stitches include the peritoneal and muscular wall, but not the mucosa, and are placed about one-half inch apart. The uterine cavity is now sponged dry and the several stitches so placed are tied. It will be observed that the uterus will now contract firmly. An ampule of pituitrin S. should be given to cause the uterus to contract. The stitch first placed at either end of the incision in the uterus is left long temporarily and is used as a retractor to steady the uterus while inserting the subsequent sutures. The edges of the incision in the uterus may be seized about the middle of the incision by toothed forceps which are held apart, everting the edges of the incision while the deep sutures are placed. The manual pressure applied to the uterus by the assistant as the final stitch is tied should cause all blood to be expelled from the uterine cavity.

The second plane consists of half-deep sutures, inserted between the deep sutures for closer approximation. Finally, the seroserous or perito-peritoneal mattress stitches are placed, closing over the seemingly deeper

layers of sutures. The operator should endeavor to close the uterine incision so accurately as to make it impossible for blood or any fluid to escape from the uterus into the peritoneal cavity.

No attempt is made to dilate the cervical canal, as this is not only unnecessary (Williams) but unwarranted in light of the probabilities of infecting the uterine cavity. For the same reason, the placing of gauze or tube drainage through the cervical canal is unnecessary and unwise.

It is felt that the operation is not necessarily a "bloody one" as is often stated, for the technique, carefully carried out without undue haste, should show certainly no greater loss of blood than a normal delivery.

The towels are removed, and the abdominal cavity cleansed of any clots or fluid. The incision in the abdominal wall may be closed in any approved manner.

COMMENT. It will be observed that the uterus is not delivered from the abdominal cavity. The delivery of the uterus is unnecessary and, I think, adds to the risk of soiling the cavity.

In the following cases all mothers are living and all children living. Recoveries uncomplicated.

Case No. 2. King's Daughters' Hospital, Staunton, Va. Renal insufficiency. Functional test.

Case No. 3. King's Daughters' Hospital, Staunton, Va. Eclampsia in active convulsions and renal insufficiency.

Case No. 4. King's Daughters' Hospital, Staunton, Va. Placenta praevia.

Case No. 1. Contracted pelvis with placenta praevia complete.

"DR. GEO. ROSS, OUR PATRIARCH."*

By THOS. H. HANCOCK, M. D., Atlanta, Ga.

Responding to a request from our secretary to present a paper at this meeting, it occurred to me that I could not find a subject so suitable to the occasion as a few remarks on our beloved friend, the originator of the Surgical Corps of the old R. & D. R. R., and Chief Surgeon of the same for a number of years. His letter in reply to mine asking the privilege of referring to him and for data for preparing my paper is so characteristic of him that I take the liberty of quoting a portion of it as follows:

"My dear friend and co-laborer in the old days,

"Your letter, received by this morning's mail, was most pleasing to me, first, because it has been very long since I had been in touch with you by correspondence, and next, because your gracefully expressed desire to do me a purposed honor was most affective to that vanity which is common to old age, and especially to a disciple of Aesculapius, sidetracked, destined to sit on the stool of repentance for his conscious many sins of omission throughout his very busy life. * * * I received a communication a short time ago announcing the meeting of the Association of Surgeons of the Southern Railway System in Washington City, early in June, indicating a desire to have it the "biggest ever" and the program "the fullest ever and the best ever." How nearly my name may come to playing any part in the third of the noted trio of big things must be left to your demonstrated ability for giving interesting and often-times instructive readings of simple "case reports" with your comments thereon and conclusions drawn therefrom. I had been thinking rather seriously about that meeting and the temptation to be once again amidst the remnants of the "Old Guard that were so unfailingly loyal and true, as to elicit from Mr. E. B. Thomas, General Manager, the written declaration to me that the surgical department of the Richmond and Danville Railroad Company was the very best that he knew of in this country." Reflecting on your request for some bricks of which to build a structure from which you might introduce me to the many newcomers that have found attachment to that service which I originated I am sending you a copy of a talk entitled, "The Egostistical I," addressed to the Medical Society of Virginia at their semi-centennial session held at the Jefferson Hotel in this city at the end of October, 1919, which will give you the necessary information.

"I had thought of attending the Washington session and personally lifting up my voice once more in the nation's capitol before the Association of Surgeons of the Southern Railway System. You possibly remember my be-

* Address at annual meeting of The Association of Surgeons of Southern Railway System, in Washington, D. C., June, 1920.

ing called on to acknowledge the address of welcome of Commissioner Ross for that association in the 'long ago.'

"My failing vision and hearing, and the fact that I have reached the period of life when the 'grasshopper' is accounted a 'burden,' forces me to sit dreamily before the twilight fire and, gazing into the smouldering embers, say,

'My head is bent and my step is slow,
I sit at night when the fire burns low,
And seem to read in the ember's glow
That the time draws nigh when I must go
And sleep with the comrades of long ago.'

"Pardon my evidences of decrepitude; old age is voluble and drifty, but my affections for the friends of my younger days are as cherished as the beauty of the twinkling stars."

On one occasion he wrote me:

"You scared me off by promising to call on me to speak;
In making speeches you must know I am just a leetle weak.
Boarman and O'Brian though will be on hand I hear.
Both are pure Virginia boys and each have voices clear,
Courageous each in doing work, each fearless in a breach,
Test them on the sands of time, try either one in speech."

George Ross, M. D., (U. Va.) Captain and Associate Medical Director, Third Corps, A. N. Va., Lt. General A. P. Hill's Staff, Captain and Assistant Surgeon in Charge V. M. I. Cadet Battalion, Battle of New Market, May 15, 1864, Chief Surgeon of the old R. & D. Railroad Co., Member of the Medical Society of Va., author of Gathered Leaves, etc., the type of man that one may point out and say "I wish to be like him."

He says of himself that he has earned many dollars but has never hoarded one for the love of the dollar, that he spent them lavishly—often foolishly and recklessly, but that he spent them as a Virginia gentleman of the old time sort,

"I have proved that pleasures are like poppies spread,
Grasp the flower and the bloom is shed."

Selfishness has played no part in his life, but ambition has and he states that he has sailed his craft in treacherous waters. He has passed the four-score years and his strength has not been entirely labor and sorrow. He is the only living graduate of the medical class of the University of Virginia of 1861 and one of the two surviving graduates of the Virginia Military Institute class of 1859. His motto has been "Quae prosunt omnibus" which being freely translated reads, "Serve mankind." He states that after the battle of Bull Run (First Manassas), he witnessed the only hip joint amputation he ever saw and looked over the shoulder of the first woman doctor who ever trod the soil of Virginia, Dr. Mary Walker.

Without trespassing on your time too far I will mention only a few of the incidents that stand out in his life. After the war he was very poor and, after trying the role of a huckster and proving to his own satisfaction that he was a failure as a farmer, he returned to Richmond and commenced again the practice of medicine which he had abandoned for a time. Starting in a modest way, bringing in his own wood, walking to see his patients and attending to his work, he soon found himself again independent. His first patient, who was a negro, was charged a dollar but, when it was found that he had only the dollar, half of it was returned to him thus establishing a precedent of dividing fees.

He was one of the ten founders of the "University College of Medicine" and filled the chair of Obstetrics and I have heard that his tribute to the female pelvis was a classic. He was president of the International Association of Railway Surgeons and presided at the only session of that body ever held beyond our own boundaries, in Toronto, Canada, in 1898. He was appointed by the Canadian authorities as representative of the American medical profession to the British Medical Society in the city of Montreal, Canada, in 1899—the only gathering of that body of scientists ever held beyond the British Isles. Many years have glided by and he has been professor, surgeon, gynecologist, oculist, general practitioner and family physician. He states: "Many changes force themselves before my vision. The life of a doctor seems like the reading of a chart in a case of a typhoid fever patient. He zigzags up and down to the climax of his professional career, then zigzags down and up to the plane of his beginning. A pure character and lofty purpose are the bases of all things worth counting in man. They are the only qualities governing human action giving promise of enduring rewards in this life, and the only personal credentials one may venture to present in the Court of Final Assize."

As the shadows of the evening steal across his sky he is not as those without hope, for he honestly wears the square and compass and his trust is in God.

Clinical Reports.

REPORT OF A CASE OF MASTOIDITIS, WITH NECROSIS OF THE BONY LAMINA COVERING THE SIGMOID PORTION OF THE LATERAL SINUS.

By T. W. EDMUNDS, M. D.
and
G. B. DUDLEY, Jr., M. D.
Danville, Va.

The patient, a boy, aged ten, was referred to us and admitted to Edmunds Hospital about nine P. M., September 3, 1920. On examination immediately upon admission there was found a profuse, purulent discharge from the left external auditory meatus, and a small discharging fistula about the region of the left mastoid antrum. Temperature 102 F., Pulse 100, Respiration 24. Patient gave history of a discharging ear of three months' duration. There was tenderness on pressure in the mastoid region, but patient had suffered no pain in the ear or mastoid region. Urinalysis showed nothing of significance and a blood count was not made as our technician was away at that time. After the usual preparation, the operation was deferred until seven o'clock the next morning, as the patient was in good condition and not in pain.

First, the opening in the tympanic membrane was enlarged to insure thorough drainage. The usual mastoid incision was made, periosteum retracted and the hemorrhage controlled. A small discharging fistula extended through the cortex of the bone in the region of the antrum. The cortex around the fistula was easily removed with a curette and rongeur forceps. Hardly had the mastoid cells been reached when there was a profuse hemorrhage from the lateral sinus. The source of the hemorrhage was easily recognized by the volume of blood and the pulsations synchronous with the heart beat. Iodoform gauze was packed into the sinus cavity, and the mastoid antrum, as well as the aditus ad antrum into the tympanic cavity, were thoroughly curetted and cleaned out. Due to the profuse hemorrhage it was impossible to complete the exenteration of all the mastoid cells. However, as much of the cortex and as many of the cells as could be safely spared, without causing further hemorrhage, were removed.

The wound was tightly packed, no closure whatever attempted, and a tight dressing put on. The packing from the sinus was removed on the second day after the operation and the wound packed daily at each subsequent dressing. Following the operation, the patient's temperature was never above normal, pain was insignificant and the recovery was uneventful. There was never any discharge through the external auditory canal following the operation and, after the fourth or fifth day, very little discharge through the mastoid opening. Patient was up and running about on the eighth day and discharged from the hospital on the tenth day following the operation.

Today, which is the fifteenth day after the operation, the mastoid wound is closed and the boy as strong and healthy as ever.

Summary: This case is reported by us not on account of the infrequency of the condition, but because of the great amount of pathological involvement with the few attending symptoms and the rapid recovery.

First: There was a necrosis of the lamina of bone separating the sigmoid portion of the lateral sinus from the mastoid cells.

Second: A profusely discharging purulent fistula had bored through the cortex of the mastoid bone to the exterior.

Third: Patient suffered no pain previous to the operation, and little subsequently.

Fourth: Temperature was never above normal following the operation.

Fifth: All of the distressing symptoms of sinus infection were absent.

Sixth: Speedy recovery of patient and cessation of discharge from a purulent ear of three months' standing.

Arcade Building.

THREE CASES OF PNEUMONIA IN WHICH PNEUMOCOCCIC ANTIGEN WAS USED.*

By R. E. MITCHELL, M. D., Richmond, Va.

Case No. 1.—Locomotive engineer, 35 years of age, had influenza at onset and developed pneumonia on the fifth day. He was seen in consultation with Dr. Call on sixth day, when both lungs were found to be involved and the outlook was very grave. Average temperature was 102-104 degrees; pulse 100-110; respiration 35-45. He was given 1 c. c. of pneumococcic antigen, repeated on the following day.

* Read at a meeting of the Richmond Academy of Medicine and Surgery, April 27, 1920.

On the third day of treatment, temperature, pulse and respiration were practically normal and the patient was feeling good. No other drug was used except heart stimulants. The prognosis had been uncertain from the beginning on account of the patient being luetic.

Case No. 2 was that of a railroad trainman who had influenza at the onset and developed pneumonia on the sixth day. Average temperature was 103-104 degrees; pulse 100-110; respiration 30-40. On the seventh day, the first injection of antigen was given and repeated every twelve hours for five injections. The temperature, pulse and respiration became normal and the lungs cleared up nicely. He later developed what was diagnosed as cholecystitis and died on the twelfth day with extreme jaundice and persistent hiccoughs, which had lasted continuously for three days before death. Dr. T. D. Jones saw this patient with me just before death and, I believe, will bear me out when I say that his pneumonia was relieved and death was due to other causes.

Case No. 3 was also a railroad trainman, 30 years old, who had lobar pneumonia from the onset. The first antigen injection was given on the second day and repeated every twelve hours for five injections. Average temperature was 103-105 degrees; pulse 110-120; respiration 35-45. After the third injection of antigen the symptoms all subsided except delirium, which continued until the fifth or sixth day. The lungs cleared on the sixth day and the patient was calling for food which he had refused previously. He was sitting up on the tenth day of illness.

All three cases were ushered in with the usual chill and rise of temperature, and were bona fide pneumonias, diagnoses being confirmed by consultation in all three. The results of the use of antigen were very apparent.

1301 *Porter Street.*

Discussion.

Dr. G. A. Ezekiel said that Dr. Mitchell's results from the use of antigen tallied with his own, namely, that after the third injection there was usually a fall of temperature to normal. The advantage of antigen over serum lies in not having to wait for the typing of the cocci.

REPORT OF A CASE OF FRACTURE OF THE PELVIS WITH AUTOPSY FINDINGS.

By N. F. RODMAN, M. D., Norfolk, Va.

C. Z., age 15 years, was admitted to the hospital January 16th, 1920, having been run over by an automobile truck. Examination showed a fracture through the left pubis near the symphysis and a fracture into the right sacro-iliac joint. At operation an extra-peritoneal rupture of the bladder and a transverse rupture of the urethra were found, with a large collection of blood posterior to and pushing the bladder forward. A supra-pubic cystotomy with drainage was performed.

On January 20th, a perineal urethrotomy with drainage was done in order to keep urine and discharge from the fragments of the fracture. At this time the patient was placed in a plaster cast with the thighs in abduction (spread eagle position). In this position the patient was fairly comfortable and the bowels, perineal and supra-pubic wounds could be cared for with ease. The supra-pubic drainage was connected with a suction apparatus and daily irrigations with a half of one per cent. hydrochloric acid solution kept down the deposits of phosphates fairly well.

On March 20th, the cast was removed and the fractures found fairly firmly united.

March 25th, a second perineal urethrotomy was done and an effort made to re-establish the urethra. After much difficulty a small catheter was passed through the urethra into the bladder. The supra-pubic drainage was kept up and most of the urine came through this tube.

On April 12th patient began to vomit and to complain of pain in the abdomen. The abdomen was tense, tender and distended. The temperature, which had been normal, rose to 101.4°. In spite of enemata and gastric lavage the patient continued to vomit large quantities of stercoraceous material. The urine which had varied in amount from twenty-five to forty ounces in twenty-four hours dropped to one dram in twenty-four hours. The next day a large mass was palpated on the right side posteriorly in the region of the kidney. A perinephric abscess was suspected and, under local anaesthesia, an incision was made posteriorly and a part of the kidney capsule stripped off, but no pus was found.

Hypodermoclysis, diuretics and stimulants

were given but the patient continued to grow worse and died of uremia on April 14th.

Post-mortem examination showed a dilated stomach and adhesions of the small intestines but no obstruction. The right kidney was about twice the normal size and was studded throughout with small abscesses and each calyx was filled with stones varying in size from a pin-head to a large pea. The right ureter was patulous and apparantly normal. The left kidney was about half the normal size and one section showed small stones in all of the calices and many small abscesses throughout its substance. The left ureter showed no abnormalities. The bladder was contracted but otherwise normal and contained no calculi. The fractures were firmly united and in good position.

I am indebted to Dr. Kirkland Ruffin, who did the operative work, for permission to report this case.

Medical Education

GRADUATE MEDICAL EDUCATION.

During the last year the Chairman of the Council, assisted by Dr. Louis B. Wilson, of the Mayo Foundation, Chairman of the Council's Special Committee on Graduate Medical Education, inspected all but a few of the graduate medical schools of the country, and their report is briefly summarized as follows:

1. Opportunities for American medical graduates to study in Europe are at present largely limited to short "courses" of lectures and clinical and laboratory demonstrations. Positions permitting individual study of, and responsibility for, the diagnosis and treatment of patients are properly filled by each country's own medical graduates.

2. In the United States opportunity for graduate study is sought (a) by those desiring to study for a few weeks or months, and (b) those desiring to study for several years.

3. The short-term graduate students—about 6,000 this year in the United States—are (a) general practitioners seeking courses in continuation of their undergraduate studies, and (b) partially prepared specialists seeking to perfect their technic, usually in some minor surgical field.

These two classes of graduates possess the following general characteristics:

Nearly all have practices, either general or more or less special, which they cannot leave for any considerable length of time; many are inadequately trained in the fundamental medical sciences; in the brief periods they can leave their practices, they are averse to spending much time on fundamentals, and, in most instances the time at their disposal is entirely inadequate to obtain even a proper start in the fundamental subjects. Many of them desire work in operative technic in surgery. A small proportion seek to study cases for clinical diagnosis. Many wish to be "crammed" and can afford to pay a reasonable fee for instruction.

The existing post-graduate schools take almost all applicants for short terms of study, though many do not enter because they cannot get the courses desired. University medical schools should provide opportunities for the better prepared men of these classes to combine diagnosis with treatment.

4. The long term graduate students—about 4,000 in the United States this year—are (a) those who wish to devote two or more years to study for practice in some special field, and (b) a small number who wish to prepare themselves for public health work or for teaching or research in the fundamental branches.

Opportunities for graduate students to prepare themselves by long periods of work in the clinical specialties are woefully lacking. Opportunities for long term courses in public health or in the fundamental branches exceed the demand, but fellowship stipends and ultimate financial rewards are too small to permit many without private resources to select such fields for their life work. The remedy is an adequate endowment for student fellowships and teaching positions.

On the basis of the inspection, the committee arrived at the following conclusions: (a) That the present facilities for graduate medical work in this country are entirely inadequate. (b) That the legitimate demand for work of this kind should be met. (c) That this demand, which has heretofore been made by proprietary schools, should be met by the universities. (d) That it would be desirable for fifteen or twenty strong university medical departments to consider the development of graduate medical departments. A suggested plan for such a school is as follows:

The graduate medical department should probably be independent of the under-graduate department, and with a separate faculty; an adequate teaching hospital and out-patient department; clinical laboratories for both out-patient department and hospital, and research laboratories. In addition to a general teaching hospital, it should have the control of special hospitals, such as eye, ear, nose and throat, orthopedic, infectious diseases, etc.

Provision should be made in the curriculum for at least five classes of students.

Group 1. For young men who have completed their medical course and their hospital internship, a course of probably three years, such as is given at the University of Minnesota. As far as possible these positions should be fellowships, carrying with them a living salary. These students, at the satisfactory completion of their work, should be given a degree of master of science or doctor of philosophy in surgery, ophthalmology, or whatever specialty they have been studying.

Group 2. For men who have completed their medical course and internship and have been in practice for three to five years, a course of at least a year of special training which, in addition to their practice, would be the equivalent of the three-year course of Group 1. These men, if they demonstrate their fitness, should be given the same degree as the men in Group 1.

Group 3. For men who have been in general or special practice a course of six months or more of training in some chosen special line. At the satisfactory completion of this work the student should be given a certificate.

Group 4. For a large group of practitioners short courses of from four or six weeks should be given in any field of work they desire. These courses should be known as practitioners' courses; they would furnish an opportunity for the practitioner to become more competent, but should not be regarded as preparing the practitioner for a specialty. No certificate of any kind should be given for this work.

Group 5. Certain courses should be planned also for practitioners who live near the medical school and could devote a few hours once or twice each week to some special subject without discontinuing their practice. This would enable practitioners to keep in touch with the newer developments in clinical and laboratory work.

As to compensation, men who devote their entire time to teaching in the graduate school should be paid adequate salaries. The compensation of the clinical teachers could be met from tuition fees. In the Graduate Medical School of Harvard we were told that about 75 per cent. of the fee went to the teachers and 25 per cent. toward general expenses. (*Report on Medical Education of A. M. A. for* 1920).

Public Health

Can The Anti-Spitting Law Be Enforced?

"Any one who has maintained a residence for a considerable period in a properly conducted sanatorium, where precautions are taken for disposing of sputum, is nothing less than horrified to observe the general carelessness of coughers and spitters throughout the state." This is how a former patient writes to the medical director of a state sanatorium.

There are adequate laws intended to prevent the spread of disease through indiscriminate spitting in public. The enforcement of these laws seems entirely dependent upon public sentiment. There was a very gratifying tendency, while the influenza epidemic swept this country, to give attention to the anti-spitting law. But, with the passing of the emergency, laxity on the part of our police officers became again the rule, and today, as through all the years reaching back to the time when history does not record to the contrary, walking carriers of disease spit and cough where they please.

The result is that disease, belonging to that classification known generally as the spray-borne family, is spread constantly to new victims. There was a time when mankind was prone to look upon sickness as a visitation of God. The truth is that mankind brings disease upon itself. Careless coughing and careless spitting are two of the most important channels through which a number of our most widespread human ills are passed from one individual to another.

Chief among the spray-borne family is tuberculosis. Heaven only knows how many innocent children may be infected with the tubercule bacillus by a single ignorant or wilfully criminal open case of this disease. The careful consumptive is not dangerous.

On the contrary it is safer to associate with a consumptive who takes the proper measures to cover his mouth when he coughs and to dispose of the sputum he raises than it is to associate with the average citizen.

Enforcement of the anti-spitting law will mean a tremendous step ahead in public health in Virginia. There has been in recent years a marked advance in general interest touching public health matters. More whole-time health officers are being appointed in communities heretofore served by part-time men. The extension work conducted by the State Board of Health and the Rockefeller Foundation has gone into an increasing number of Virginia counties. Does not the present seem a good time for health officers, city and county, to establish a more definite connection with the regular police officers, looking to improvement in the enforcement of the anti-spitting law?

Tuberculosis Wards in General Hospitals.

The State Department of Health estimates that there are 4,000 deaths in Virginia every year from tuberculosis. It is generally held that the average patient is bed-ridden or should be in bed the last twelve months of the duration of this disease. Therefore, to make adequate provision for far advanced cases of tuberculosis in Virginia 4,000 beds would be required. Instead of having 4,000 available for tuberculosis cases, there are only about 800 beds in the state.

Would it not be practical for general hospitals to establish tuberculosis wards? This would involve no very great added expense, either for construction or for administration. In most cases, porches already existing could readily be used for these cases. The bugaboo of phthisiophobia which, it might as well be admitted, had its day among some members of the medical profession as well as with the laity, has gone its way. Every physician and every intelligent layman now knows there is no danger to be feared from infection of this character when simple precautions are taken.

Tuberculosis wards in general hospitals would open the doors of these institutions to fellow beings as sorely in need of proper medical attention as any class of sufferers. The rewards to be expected from proper treatment of tuberculosis are as certain as may be expected from the treatment of other human ills. Intelligent medical attention, faithfully and persistently carried out, undoubtedly brings success.

Let it be remembered, too, that in a great many cases it is vitally important for proper treatment to be started immediately following diagnosis. Tuberculosis wards in general hospitals, where patients would be received and cared for after diagnosis and until they could be admitted to tuberculosis sanatoria, would have very great value in every community.

B. L. Taliaferro.

Rabies Appears to be Increasing in Virginia.

When a dog is suspected of having rabies, the surest diagnosis is to shut the dog up and watch him. If he lives eight or ten days after biting anyone, there is no need for further worry. If he dies or is killed, send the head to the State Laboratory, 12th and Clay Streets, Richmond, Va., for examination, or if located nearer to Washington, send the head to the Hygienic Laboratory.

When sending a head, pack it in ice and ship by express or special delivery, parcel post. Brain tissue decomposes rapidly and many heads reach us in summer too decomposed to examine.

Usually the head is only examined microscopically, but where the case is clinically very suspicious, the failure to find Negri bodies is not regarded as conclusive. In these cases animal inoculation is made, so that it is important to send full information with the head.

The State Board of Health still provides free Pasteur treatment for those unable to pay it, but any physician may now give the treatment himself. The treatment is shipped in convenient syringe packages ready for use at a cost of $20.00. The new dog law provides that "in case of any person being bitten by a mad-dog he shall recover from such fund the costs of necessary treatment, not to exceed two hundred dollars."

Aubrey H. Straus,
Bacteriologist, State Laboratory.

The Truth About Medicine

During August the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies:
Armour & Co.:
Corpus Luteum Tablets—Armour 5 grains.
Diarsenol Co.:
Sodium Diarsenol
Sodium Diarsenol 0.15 Gm. Ampules

Sodium Diarsenol 0.3 Gm. Ampules
Sodium Diarsenol 0.45 Gm. Ampules
Sodium Diarsenol 0.6 Gm. Ampules
Sodium Diarsenol 0.75 Gm. Ampules
Sodium Diarsenol 0.9 Gm. Ampules.

NEW AND NON-OFFICIAL REMEDIES

Sterile Solution of Lutein—H. W. D.—Each cubic centimeter contains the water-soluble extract of 0.2 Gm. lutein—H. W. D., freed of protein in physiological solution of sodium chloride. For a discussion of the actions and uses of ovary preparations, see New and Nonofficial Remedies, 1920, p. 201. The solution is supplied in the form of Ampules Sterile Solution of Lutein—H. W. D., containing 1 Cc. Hynson, Westcott & Dunning, Baltimore.

Ovarian Residue-H. W. D.—The residue from the fresh ovary of the hog, after the ablation of the corpus luteum. Ovarian Residue is used for the same conditions as the entire ovarian substance, but is claimed to have the advantage of being somewhat more stable. Ovarian Residue-H. W. D. is supplied in the form of 5 grain tablets only. Hynson, Westcott & Dunning, Baltimore (Jour. A. M. A., Aug. 7, 1920, p. 378).

Benzyl Benzoate-Seydel.—A brand of benzyl benzoate complying with the tests and standards of New and Nonofficial Remedies. For a discussion of the actions, uses and dosage of benzyl benzoate, see New and Nonofficial Remedies, 1920, p. 48. Seydel Manufacturing Company, Jersey City, N. J.

Tablets Anterior Pituitary-Armour 5 grains.—Each tablet contains 5 grains of desiccated pituitary substance (anterior lobe). Armour (See New and Nonofficial Remedies, 1920, p. 207). Armour & Co., Chicago.

Tablets Ovarian Substance-Armour 5 grains.—Each tablet contains 5 grains of Ovarian substance-Armour (See New and Nonofficial Remedies, 1920, p. 202). Armour & Co., Chicago.

Riodine.—A 66 per cent. solution in oil of an iodine addition (see Iodine Compounds for Internal Use, New and Nonofficial Remedies, 1920, p. 143). Riodine is supplied only in the form of Riodine Capsules 0.2 Gm. E. Fougera & Co., Inc., New York (Jour. A. M. A., Aug. 14, 1920, p. 477).

PROPAGANDA FOR REFORM

Digitalis Therapy.—Thanks to the development of appropriate methods of physiologic assay, digitalis preparations can now be evaluated in terms of their real potency, and products can be prepared which are stable and constant as the pharmacopeial standards demand. Physicians have learned, largely through the leadership of Cary Eggleston, how to estimate digitalis dosage on the basis of body weight. As the possibility of overdosage can be recognized by the occurrence of symptoms such as nausea, or by the electro-cardiograph, it becomes possible to push the dosage speedily to the limit of tolerance, with corresponding therapeutic advantage. There remains, however, the important need of differentiating more clearly the patients for whom digitalis is actually indicated. (Jour. A. M. A., Aug. 7, 1920. p. 417).

Internal and External Antisepsis.—Despite the numerous efforts to demonstrate the efficacy of this or that chemical agent or drug as a gastro-intestinal antiseptic, the outcome has been that the supposed benefits were due to catharsis in most instances rather than to any real effect upon the bacteria in situ. Similarly, J. F. Norton, in an investigation made for the Council of Pharmacy and Chemistry, has shown that the value of "antiseptic" and "germicidal" soap depends on the soap and not on the antiseptic or germicide contained in them. In fact, ordinary toilet soap and the green soap used by surgeons were more efficient, evidently because the added antiseptics and germicides interfered with the lathering qualities of the soap (Jour. A. M. A., Aug. 14, 1920, p. 478).

The Bethlehem Laboratories, Inc., Preferred Stock.—Physicians in various parts of the country have received advice that they have been selected to share in the profits of the Bethlehem Laboratories, Inc., New York City. The company claims to control the manufacture of hyclorite, a product accepted by the Council on Pharmacy and Chemistry. These physicians are given an option to purchase four shares of the company's stock for four hundred dollars. The directorate of the Bethlehem Laboratories, Inc., is stated to be composed of business men of Bethlehem, Pa., the president of the General Laboratories, Madison, Wis., a "prominent physician" of Bethlehem, and J. Jay Reilly, Philadelphia, a "prominent Philadelphia surgeon and consulting chemist to several large manufacturing drug concerns." Hyclorite, manufactured by the General Laboratories, Madison, Wis., was accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies because at the time that it was considered, it was marketed in accordance with the Council's rules. The investment proposition which the Bethlehem Laboratories makes to physicians is an insult to decent medical men. When physicians are interested in products they prescribe or recommend, the public does not get a square deal. It is against public interest and a degradation of scientific medicine for physicians to be financially interested in the products they prescribe (Jour. A. M. A., Aug. 14, 1920, p. 493).

Quinin and Urea Hydrochlorid for Local Anesthesia.—Quinin is a protoplasmic poison, and tissue necrosis may be caused by strong solutions of quinin salts. That this deleterious reaction actually does occur and has mitigated against the general use of quinin and urea hydrochlorid is confirmed by the report of the Committee of the A. M. A. on the Advantages and Disadvantages of Local Anesthesia in Nose and Throat Work. The committee reported that the only local anesthetic that produces edema and sloughing is quinin and urea hydrochlorid. The committee found that, as this local anesthetic has been abandoned in other fields of medicine, so it has been discarded for use in nose and throat operations. Two physicians who published articles extolling the value of quinin and urea hydrochlorid in nose and throat operations, now state that they discontinued its use, though they had not published this unfavorable conclusion (Jour. A. M. A., Aug. 21, 1920, p. 559).

Value of Schick Test.—The Schick test, which can readily be applied to a large number of persons, makes it possible to differentiate those immune from those susceptible to diphtheria. It also facilitates the attempt to increase the number of the immune by suitable prophylactic toxin-anti-

toxin injections. By the use of the Schick test and anti-toxin injections, institutions have been kept free from cases of diphtheria for years (Jour. A. M. A., Aug. 21, 1920, p. 545).

Sukro-Serum and Aphlegmatol.—About two years ago, American newspapers contained accounts of an alleged cure for pulmonary tuberculosis "discovered" by Prof. Domenico Lo Monaco, of Rome, Italy. Reports indicated that this so-called Italian Sugar Cure for Consumption consisted of the intramuscular injection of solutions of sucrose (saccharose—cane sugar). Now the Council on Pharmacy and Chemistry reports on two proprietary preparations based on the "sugar cure" which are being exploited in this country: Sukro-Serum and Aphlegmatol. Sukro-Serum is marketed by the Anglo-French Drug Company. A circular issued by this company described Sukro-Serum as a "Sterilized Solution of lacto-glucosaccharose." By reading this circular to the end, however, one learns that "Sukro-Serum" is not a "serum" in the ordinary sense, but apparently it is a solution of ordinary sugar (sucrose). Aphlegmatol is sold by G. Giambalvo & Co. The circular enclosed with a package of this preparation contains the following, with reference to the composition: "A solution of Hydrats of Carbon after the formula of Professor D. Lo Monaco, Director of the Institut of Physiological Chemistry of the University of Rome." The preparation was found to contain a reducing substance, probably glucose, amounting to about 7.4 per cent. After hydrolysis, 55.5 per cent. of glucose was found. The advertising for Aphleg
pears to be the work of those ignorant of the English language. These two preparations appear to be nothing more than concentrated solutions of sugar. It is probable that a small amount of cane sugar might be inverted into glucose and fructose, but experiments have shown that cane sugar subcutaneously administered in the small amounts used in this instance is largely excreted in the urine unchanged. Less is known about galactose, but the evidence available would indicate that galactose is largely excreted in the urine unchanged when given subcutaneously. Glucose would be absorbed as such, and the amounts under consideration, used by the system much the same as when given by mouth (Jour. A. M. A., Aug. 21, 1920, p. 556).

More Misbranded Nostrums and Drug Products.—The following products have been the subject of prosecution by the federal authorities under the Food and Drugs Act: Tonic Remedy, a nostrum of the alcoholic type was misbranded because the label failed to show the quantity or proportion of alcohol present. Big G., said to be "A Compound of Borated Goldenseal," was essentially a watery solution of boric acid and berberin. Plantation Sarsaparilla consisted essentially of potassium iodid, alcohol, plant material, sugar and water. Magic Eye Salve consisted essentially of zinc oxid, benzoic acid and petrolatum. Femenina consisted essentially of alcohol, sugar, water and unidentified material with indications of valerian. Balsam Copaiba, Salol Compound, and Methylene Blue Compound (The Evans Drug Mfg. Co.), were capsules which were below standard in strength and purity. Pabst's Okay Specific consisted essentially of volatile and fixed oils, plant extractives, including cubebs, balsam of copaiba and buchu, and more than 29 per cent. of alcohol. Liebig's Diarrhoea Cordial consisted essentially of a solution of morphin sulphate, catechu, tannin, oil of cassia, oil of peppermint, sugar, alcohol and water (Jour. A. M. A., Aug. 28, 1920, p. 623).

Silver Salvarsan.—According to a report of the Medical Research Committee of Great Britain, silver salvarsan is apparently a molecular combination of arsphenamine and silver in some form. The substance is on trial, and its promiscuous use at this time would be ill advised. In the United States no license for the sale of silver salvarsan has been granted by the Treasury Department and hence it may not be sold in interstate commerce (Jour. A. M. A., Aug. 28, 1920, p. 626).

Iodex and Liquid Iodex.—The A. M. A. Chemical Laboratory examined Iodex in 1915 and found that it contained only traces of free iodin, though claimed to contain "5 per cent. therapeutically free iodin." Even the total quantity of iodin was shown to be only about one-half of the 5 per cent. claimed to be present as free iodin.

An analysis of the Iodex sold in 1919 demonstrated that the preparation is essentially the same as that sold in 1915, that is, it was found to contain no free iodin and only about three-fifths of the total amount of iodin claimed. The laboratory points out that the synonym used for Iodex, "Ung. Iodi, M. and J." is in obvious conflict with the Food and Drugs Act in that, though sold under a name recognized in the U. S. Pharmacopeia, it does not conform to the standards for Ung. Iodi. of the pharmacopeia. The laboratory further reports that Liquid Iodex, sold with the claim that it is a preparation having the properties of free iodin, is a reddish liquid with an odor like oleic acid, containing but little, (0.16 per cent.) free iodin and only about three-fifths of the total iodin claimed (Reports of the A. M. A. Chem. Lab. 1919, p. 104).

I. G. O.—According to Dr. H. S. Lambdin, Peru, Kansas, I. G. O. is: saturated solution of iodin gas in petrolatum at 130 degrees with oil of eucalyptus. The heat of the body liberates the iodin and it is absorbed as free iodin. The A. M. A. Chemical Laboratory reports that the sample of I. G. O. was a black ointment, green in thin layers, with a slight odor like crude petroleum, containing but 0.59 per cent. of free iodin (Reports of the A. M. A. Chem. Lab., 1919, p. 106).

Proceedings of Societies

Richmond Academy of Medicine and Surgery.

The regular bi-weekly meeting of the Academy, held September 28, was called to order by the President, Dr. Garnett Nelson.

Drs. Wm. Tate Graham and Neilson H. Turner were elected to fellowship, and Dr. W. T. Oppenhimer, Jr., was nominated for fellowship.

Dr. John S. Weitzel read a paper entitled *Fluid Injections by the Peritoneal Route*,

which was discussed by Drs. W. L. Peple and Weitzel.

Dr. Thos. S. Shelton read a paper entitled *Etiology and Treatment of Asthma*, which was discussed by Drs. J. M. Hutcheson, W. H. Higgins, Garnett Nelson and Shelton.

The following delegates and alternates were elected to the House of Delegates of the next meeting of the Medical Society of Virginia: *Delegates*, Drs. Mark W. Peyser, T. D. Jones, W. H. Higgins, Garnett Nelson, R. C. Bryan, R. C. Fravel and Fred. M. Hodges. *Alternates*, Drs. P. D. Lipscomb, C. C. Hudson, W. L. Peple, W. H. Porter, R. D. Garcin, M. E. Nuckols and S. N. Michaux. The papers and discussions, noted above, will be published in a subsequent issue of the VIRGINIA MEDICAL MONTHLY.

MARK W. PEYSER,
Secretary.

The Botetourt County Medical Society,

The regular quarterly meeting of this Association was held in Farmville, September 21, the president, Dr. D. L. Harrell, of Suffolk, in the chair, and the secretary, Dr. R. L. Raiford, in his accustomed place. The attendance was good and the program interesting. The subject for general discussion was "Toxemia of Pregnancy." Several other papers were also read at the afternoon session and, after a supper tendered the visitors by the Chamber of Commerce of Farmville, a public meeting was held which was largely attended by students from the Normal school and citizens. At this time the subject of Preventive Medicine was discussed by Drs. E. M. Mann, Kenbridge, H. T. Hawkins, Kenbridge, and R. L. Raiford, Sedley.

Dr. W. L. Varn, of Cumberland C. H., was elected a member and Norfolk was decided upon for the next place of meeting.

Botetourt County Medical Society

Was recently re-organized and the following officers elected: President, Dr. M. T. McCulloch, Troutville; vice-president, Dr. P. K. Graybill, Fincastle; secretary-treasurer, Dr. E. W. Dodd, Buchanan. In addition to the above, the enrollment to date is as follows:—Drs. W. C. Barker, Buchanan; C. A. Davis, Eagle Rock; J. M. Spencer, Lignite; R. T. Givens, Glen Wilton; A. W. Hammond, Amsterdam; W. N. Breckinridge, Fincastle, and J. K. Simmons, Nace.

Drs. P. K. Graybill and E. W. Dodd were elected delegate and alternate, respectively, to the meeting of the Medical Society of Virginia in Petersburg.

E. W. DODD,
Secretary-Treasurer.

The Augusta County Medical Association,

At its regular meeting, in Staunton, October 6, elected Dr. C. C. Jones delegate, and Dr. J. B. Catlett, alternate, to represent the Association in the House of Delegates at the Petersburg meeting of the State Society. Papers were read by Drs. Charles Minor Blackford and Alex. F. Robertson, Jr. Dr. H. M. Wallace, of Greenville, is the new president.

A resolution was passed favoring the proposed organization of the *Valley of Virginia Medical Society*, to be composed of the counties of Rockbridge, Alleghany, Augusta, Rockingham and Frederick.

C. C. JONES,
Secretary.

The Southwestern Virginia Medical Society,

At its semi-annual meeting in Bristol, September 29 and 30, appointed Dr. F. H. Smith, of Abingdon, delegate to the Petersburg meeting of the Medical Society of Virgnia, and Dr. J. C. Motley, also of Abingdon, alternate. New officers of the Society, elected at this meeting, are: President, Dr. W. R. Rogers, Bristol; vice-president, Dr. E. E. Watson, Salem; and secretary-treasurer, Dr. Elbyrne Gill, Roanoke. Pulaski was selected for the place of the next meeting, May 11 and 12, 1921.

A. B. GREINER,
Secretary-Treasurer.

The Tazewell County Medical Society,

At its last meeting in August, entertained the McDowell and Mercer County, West Virginia, Medical Societies. Interesting papers were read by Dr. F. H. Smith, Abingdon; Dr. S. D. Hatfield Iaeger, W. Va.; and Dr. O. A. Hare, Bluefield, W. Va. Dr. H. B. Frazier, Graham, was elected president, and Dr. Frank Pyott, Tip Top, secretary. Meetings will be held quarterly.

The Fairfax County Medical Society,

At its annual meeting in August, elected the following officers for the ensuing year:—President, Dr. John Smallwood, East Falls Church; vice-presidents, Drs. J. B. Bogan, Washington, D. C., and John Zerbee, Fairfax; recording secretary, Dr. W. P. Caton, Fairfax; treasurer, Dr. F. M. Brooks, Swetnam; and corresponding secretary, Dr. O. H. Coumbe, Washington, D. C.

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PAUL W. HOWLE, M. D., Richmond, Va.
EDWIN L. KENDIG, M. D., Victoria, Va.
ALFRED L. GRAY, M. D., Richmond, Va.

EDITOR
ALEX. G. BROWN, Jr., M. D.
G. H. WINFREY, Business Manager.

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Editorial

Patriotism in Medical Education.

Virginia is about to consider a great educational problem which must be solved. If solved patriotically and rightly, the state may face the future of this question with confidence. If left unsolved and allowed to remain as it is, the people of the state will suffer. So the proper solution of the question of medical education demands the patriotic consideration of the physicians of this state. The time is at hand. The reorganization and readjustment of the old to meet the demands of the new age, now beginning, is right upon us. The solution of the qestion should be influenced by no petty or narrow motives. Little men, with little ideals, with little vision, with littleness in any form, must not be permitted, for a moment, to stay the advance of the great movement for better medical education in the state of Virginia. Sentiment, precedents, old-ties, on the one hand and personal advantage, personal interests, on the other, must not be allowed to operate, in combination or separately, to check the movement to secure for the state and section one medical school of the best type.

There is no place, now, for a second rate medical school. The public, in the light of modern science, has every right to get the very best medically trained doctor possible to get. No class of Virginians knows the full significance of this need better than the doctors of this state. With this knowledge, and having a committee appointed by the state medical society to look into the merits of the whole question, this society, it is hoped, will take a definite stand on the matter, determining to support to the uttermost the movement for a medical institution that will stand abreast of the best in this country. This is no visionary scheme. Virginia has all the essentials or can secure all the essentials for a GREAT MEDICAL SCHOOL.

Note what The Carnegie Foundation for the Advancement of Teaching on Medical Education in the United States and Canada (Bulletin number Four) stated in 1910 about the reconstruction of medical education in the South:

"*Greater unevenness must be tolerated in the* south;* proprietary schools or nominal university departments will doubtless survive longer there than in other parts of the country because of the financial weakness of both endowed and tax-supported institutions. All the more important, therefore, for universities to deal with the subject in a large spirit, avoiding both overlapping and duplication. An institution may well be glad to be absolved from responsibilities that some other is better fitted to meet. Tulane and Vanderbilt, for example, are excellently situated in respect to medical education; the former has already a considerable endowment applicable to medicine. The state universities of Louisiana and Tennessee may therefore resign medicine to these endowed institutions, grateful for the opportunity to cultivate other fields. Every added superfluous school weakens the whole by wasting money and scattering the eligible student body. None of the southern state universities, indeed, is wisely placed: Texas has no alternative but a remote department, such as it now supports at Galveston; Georgia will one day develop a university medical school at Atlanta; Alabama, at Birmingham,—the university being close by, at Tuscaloosa. *The University of Virginia is repeating Ann Arbor at Charlottesville; whether it would do better to operate a remote department at Richmond or Norfolk, the future will determine.* Six schools are thus provided; *they are sufficient to the needs of the section just now.* The resources available even for their support are as yet painfully inadequate: three of the six are still dependent upon fees for both plant and maintenance. It is doubtful whether the other universities of the south should generally offer even the instruc-

*The south includes eleven states, viz., Virginia, Kentucky, North Carolina, South Carolina, Florida, Georgia, Tennessee, Mississippi, Louisiana, Arkansas, Texas.

tion of the first two years. The scale upon which these two-year departments can be now organized by them is below the minimum of continuous efficiency; they can contribute nothing to science, and their quota of physicians can be better trained in one of the six schools suggested. *Concentration in the interest of effectiveness, team work between all institutions working in the cause of southern development, economy as a means of improving the lot of the teacher—these measures, advisable everywhere, are especially urgent in the south.*"

"Basal Metabolism."

One may well think of respiration and circulation as one mechanism when contemplating the fundamentals of metabolism. The blood carries the activator of respiration and upon this respiratory action depends the intake of oxygen and carbon dioxide elimination. Complex chemical processes taking place in the body tissues, as the cells carry on the transformation of food-elements into heat and energy in the body, are indeed too intricate for present discussion. But "basal metabolism" is a term that endeavors to express the lowest ebb of metabolism. This naturally is found in the body when its activities are as near as possible suspended both as related to exercise and the complete digestion of food. Normally, in-take of food, muscular movement, nervous excitation or stress, increase metabolism. This increases a demand for oxygen.

The respiratory-circulatory mechanism of the body, through complex adjustments, enables the body to increase its metabolic level. In the circulatory mechanism the flow of blood is increased by (1) increasing heart rate per minute, (2) raising the blood pressure, and (3) adequate vascular contractions and dilatations of blood vessel channels in various parts of the body. The lungs get larger volumes of blood through the pulmonary vessels. The aeration of this more rapid flowing procession of red-blood-cells is met by an increased oxygen tension in the air cells and carbon dioxide tension in the air cells must be so low that the hemoglobin reaching the air cells through venous blood in greater amount will diffuse in to the air of alveolar spaces. To accomplish this, the next step in the mechanism is brought about by increase of rate and depth of respiration.*

*Read: Peabody, F. W. Oxford Medicine, Vol. I, part 5.

Through this "respiratory-circulatory mechanism" of the body, in certain pathological states, increased action is demanded. Febrile diseases and hyperthyroidism are the common conditions that are characterized by increased metabolism while there is also an increase of metabolism rate in diabetes, anemia and advanced nephritis. To illustrate, typhoid fever shows an average metabolism increase of 40 per cent. over normal; anemia an increase of 7 to 33 per cent.; exophthalmic goitre, 69 to 83 per cent:—after thyroidectomy the basal metabolism may fall 4 to 6 per cent. below normal.

Prevent Heart Disease.

It is not a question of public hygiene and inoculation. It is not a question of heredity. The question of prevention of heart disease goes back in childhood to the contagious diseases of that period. The prevention of infections of childhood and the personal hygiene of the individual mouth and throat will do a great part in checking heart disease of youth. The rheumatic heart of youth is in large degree the result of bacterial infections of the throat and mouth following upon attacks of tonsillitis and secondary arthritis. With this comes the endocarditis which cripples the auricular ventricular mechanism and which brings about cardiac arrhythmia and myocardial hypertrophy. Further, the condition of the teeth influences the matter of endocarditis because from this source the endocardial lining of the heart frequently receives its primary implantation of micro-organisms. The teeth may also serve as a primary focus to the tonsillitis which, in its turn, serves to transmit the bacterial agent to the heart.

Heart disease of late life may follow upon syphilitic or more chronic focal infections of the mouth and throat. Syphilis particularly, in its early secondary stage, frequently affects the heart and bloodvessels. About the aortic valve and in the aorta, hyperplastic growth of tissue centers; and, at this area, in the fourth or fifth decade syphilis cripples the heart with a more or less characteristic pathology.

So, too, during this period, and later, these chronic focal infections of the teeth and tonsils may serve as the primary focus for a chronic myocarditis with the resulting cardiac weakness or misfunctionation. At this time, also those types of heart disease resulting from

over-eating, alcoholism, and mechanical effort, appear.

The cardio-vascular renal cases of adult and advanced life, falling in this group, can only be prevented by careful regulation of the habits and diet of early life. Men and women, too, acquire habits of eating and habits of life in the first four decades, which, continued through the five decades, bring them to the premature termination of cardio-vascular disease.

Doctors' Accounts.

This issue of the Virginia Medical Monthly marks the close of the first year of its history under the ownership of the Medical Society. It is impossible to tell at this time whether it has been a success or failure financially. The past twelve months have been hard on all publications; probably more have discontinued publication or merged with others than at any other period in our history. One Richmond daily has gone out of existence entirely and another has sold out to one of its neighbors—becoming really an afternoon edition of the morning daily. Probably other cities in Virginia have seen the same thing happen to their dailies. On account of the non-payment of dues by members of the society we are not in a position to say what our financial condition is. It is probable that many will pay up before the society meets and others at the meeting. Members will be assured that every legitimate effort will be made to collect the money now owing the society—both the dues for 1920 and all arrearages. Stamped envelopes and checks—all made out and ready for signature—were mailed members this month and the response should be prompt. It is necessary to remind the members of the society that we must have not less than one thousand dollars monthly to meet regular expenses. Printers do not wait to collect from us.

We are not at all pessimistic about the journal. It is the spokesman for almost the entire medical profession of the state; it is the organ through which the state society will some day wield its proper influence in medical and health affairs in the state; it brings to the busy practitioner the best thought and the best achievement in medicine and surgery which our ablest men can produce; doing this work, it will continue as an exponent of the ability of the medical profession of this state. The more or less incidental matter of sufficient revenue to meet expenses is up to the business manager; hence this constant call for money.

We expect to receive checks from several hundred members this month. The seriousness of the situation demands that every member who has not done so should today send in his check. Why not do it now?

G. H. Winfrey.

Lost Membership.

Don't risk the loss of your membership in your state society. On it depends your membership in your local society; on it depends your membership in the American Medical Association; on it depends, largely, the rating the world gives you as a physician. You can lose your membership by being put out for gross misconduct or for failure to pay your dues. The Secretary-Treasurer is required to report to the Executive Council the members who have failed to pay the annual assessment for one year, and it is also required that their names be published. Why not see that your name is omitted from this list?

Membership in the society is growing—largely due to the activity of component societies. The time is short but enough is left to call a meeting of the doctors in your county and reorganize. Physicians who are interested in this important work, but who are very busy, should have notices sent out from the office of the society. We are equipped for the work and will do it promptly. As we build up the component organizations, the state society will take care of itself. Carry on!

G. H. Winfrey.

News Notes

Medical Society of Virginia.

We want this to be the biggest and best meeting ever. May we count on your help? There is nothing which so much adds to the success of a meeting as to have a crowd. Accommodations are ample in the form of half a dozen hotels and a number of restaurants. It would be better, however, to make reservations, where possible, at least a week in advance, or you may not be able to secure room in the hotel of your choice. Meetings of the Society are to be held in the Petersburg High School, on West Washington Street, this building affording space for the general sessions and various committee meetings. Have your mail sent to you care of the Medical

Society of Virginia, as there will be both post-office and telegraph facilities. Every detail looking to the comfort and pleasure of the visitors has been arranged by the committees.

The following are members of the Executive Committee: Dr. F. J. Wright, chairman; Dr. J. M. Harwood, secretary; Dr. H. A. Burke, in charge of headquarters and exhibits; Dr. W. F. Drewry, publicity; Dr. J. Bolling Jones, hotels; Dr. E. L. McGill, transportation and automobiles; Mr. H. C. Myers, finance; Mr. W. M. Martin, entertainments.

The Ladies' Executive Committee includes Mrs. F. J. Wright, chairman; Mrs. J. M. Harwood, secretary; and Mesdames H. A. Burke, Wm. F. Drewry, J. Bolling Jones, R. A. Martin, H. Carter Myers, Mrs. W. H. Patteson, and Miss Anne M. Cooper.

Cards and official badges will be issued members and guests at the Registration desk. You are requested and expected to bring the lady members of your family and the ladies' committee will look after their pleasure and comfort while you are attending the scientific sessions. No entertainment will be so formal as to require your dress suit, so come prepared to enjoy yourself in an informal way.

If you had not planned to attend, do it now and, when the local committee's card reaches you, send your acceptance. You will enjoy the change and should feel fully repaid for the time taken from your work. Come and renew old friendships. There is no tonic like this for making one feel young.

Delegates To Medical Society of Virginia Meeting.

To the time of going to press, we have been advised by only 18 societies of the appointment of delegates and alternates to represent them at the Petersburg meeting of the Medical Society of Virginia. It is not yet too late to send their names that they may be seated at the Petersburg meeting. The Society wants every County in the State to be represented. According to the By-Laws, each component county society is entitled to "one delegate and one alternate for each thirty-five members or major fraction thereof" or if the membership is less than thirty-five, it shall have at least one delegate and one alternate. Let each society which has not yet sent us names of delegates and alternates, take this as a personal request to let us have them promptly.

The names of delegates received to this time are:

Arlington County—Dr. Richard N. Sutton, Clarendon.

Augusta County—Dr. C. C. Jones, Staunton.

Botetourt County—Dr. P. K. Graybill, Fincastle.

Buckingham County—Dr. John Randolph, Arvonia.

Dinwiddie County—Dr. F. J. Wright, Petersburg.

Fairfax County—Dr. John Smallwood, East Falls Church.

Isle of Wight County—Dr. Rea Parker, Smithfield.

Louisa County—Dr. H. S. Daniel, Louisa.

Lunenburg County—Dr. L. H. Apperson, Victoria.

Lynchburg and Campbell County—Drs. James Morrison and John W. Carroll, both of Lynchburg.

Nelson County—Dr. A. A. Sizer, Schuyler.

Richmond Academy of Medicine and Surgery—Drs. Mark W. Peyser, Thos. D. Jones, Wm. H. Higgins, Garnett Nelson, Robt. C. Bryan, R. C. Fravel and Fred M. Hodges, all of Richmond.

Roanoke Academy of Medicine—Drs. Geo. B. Lawson and J. R. Garrett, both of Roanoke.

Southampton County—Dr. G. H. Musgrave, Boykins.

Southwestern Medical Society—Dr. F. H. Smith, Abingdon.

Warren-Rappahannock-Page County—Dr. Giles B. Cook, Front Royal.

Warwick County—Dr. Otis T. Amory, Newport News.

Wise County—Dr. C. B. Bowyer, Stonega.

The Medical College of Virginia,

Richmond, opened this year with a much larger enrollment than last year and with thirteen women in the medical department. Twenty additions were made to the personnel of the faculty, in the school of medicine, as follows:

H. S. Thatcher, M. D., professor of pathology.

C. V. Scudder, M. D., associate professor of pathology.

Margaret M. Hoskins, Ph. D., associate professor of anatomy. (In charge of the work in histology and embryology.)

William F. Sharpe, M. D., associate in clinical pathology.

R. D. Caldwell, M. D., associate in anatomy.

J. H. Baird, M. D., associate in surgery.

R. A. Morrison, M. D., associate in medicine.

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A. C. Sinton, M. D., associate in surgery.
T. F. Wheeldon, M. D., associate in orthopedic surgery.
W. B. Blanton, M. D., instructor in medicine.
H. R. Master, M. D., instructor in nervous and mental diseases.
H. A. Brady, M. D., instructor in genito-urinary surgery.
E. C. Bryce, M. D., assistant in otology, rhinology and laryngology.
W. W. Falkener, M. D., assistant in pediatrics.
J. F. Fulton, M. D., assistant in medicine.
T. E. Hughes, M. D., assistant in otology, rhinology and laryngology.
Sydney Trattner, M. D., assistant in opthalmology.
N. H. Turner, M. D., assistant in opthalmology.
A. I. Dodson, M. D., assistant in genito-urinary surgery.
C. E. Llewellyn, M. D., assistant in medicine.

The University of Virginia

Opened its centennial year on September 20, with the largest initial registration in its history. There was an enrollment of 115 in the medical department, four of whom were women.

Announcement has been made by chairman of the faculty committee in charge of the affair that May 31 to June 3 inclusive, have been the dates definitely set for the Centennial Celebration at the University of Virginia. Alumni of the school, throughout the country, will be much interested in this event and a large gathering is expected.

Association of Medical Officers of Southwest Virginia.

On March 4, doctors of Roanoke and Salem, Va., who served in the World War, had an informal dinner and gathering, at which time plans were discussed looking toward forming a permanent organization. At a meeting on July 9, these plans were perfected and all medical men residing in Southwest Virginia, who served in the Great War, and who are eligible for membership in the American Legion, were invited to join. This association is for the purpose of cementing and perpetuating the ties formed during the war. There are to be no dues but it is planned to have dinners or informal gatherings about twice a year. At this time, the association numbers over sixty men. Dr. Hugh Trout, of Roanoke, was elected temporary president, and Dr. Jos. T. McKinney, also of Roanoke, was elected temporary secretary.

Diphtheria Antitoxin Should be Accessible.

With the return of this season, when an increase in the incidence of diphtheria may be expected, the State Health Department urges the necessity of every community being provided with an adequate supply of diphtheria antitoxin. The lives of many children have been jeopardized by delay in treatment incident to having to order the antitoxin from some large center.

Dr. R. W. Browne,

Formerly of Norfolk, Va., is now stationed at Boston, in the U. S. Public Health Service.

New Building For Doctors In Washington.

There has just been completed in Washington, D. C., the Medical Science Building, which is located on Vermont Avenue and L Street, Northwest. It has eleven floors and is fireproof and was built principally for physicians and dentists. The offices are arranged in suites consisting of reception room, laboratory and private offices, and each suite is equipped with electricity, gas, water and compressed air.

Dr. Henry Clay Carson,

Who practiced at Sugar Grove, Va., for some years, is now located at Andover, Va.

Jefferson Medical College Memorial.

On October 7, a memorial was dedicated by the alumni of Jefferson Medical College, Philadelphia, to the graduates from that school, who made the supreme sacrifice during the World War. This college was represented in the war by 1,147 graduates, of whom twenty-five lost their lives. The memorial was in the form of a bronze tablet engraved with the names of the men who died, and has been placed in the main entrance to the college at Tenth and Walnut Streets.

Dr. J. Fulmer Bright,

Formerly of the Richmond Grays, this city, has been chosen colonel of the First Regiment, Virginia Infantry, National Guard.

Changes At C. & O. Hospital, Clifton Forge.

Dr. J. M. Emmett, formerly of this city but recently connected with the C. & O. Hospital, at Huntington, W. Va., has been named surgeon-in-charge of the C. & O. Hospital at Clifton Forge, Va.

Dr. L. E. Walton, who recently located at Low Moor, Va., has accepted the position of first assistant in surgery to Dr. Emmett.

Twin City.

From an item noticed in the *New York Medical Journal*, Akron, Ohio, may at present be termed the "twin city," as according to recent reports it lays claim to the largest proportion

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of twins to other births of any city in the union. In 1919, forty-six pairs of twins were born, and to August 31, of this year, forty-one pairs had already been born. Of the 1920 twins, sixteen pairs are male, twelve female, and thirteen mixed.

Dr. Buckner M. Randolph,

Of Washington, D. C., announces the removal of his office to 2010 R Street, Northwest, that city.

Senior Surgeon Claude H. Lavinder,

Of the U. S. Public Health Service, an alumnus of the University of Virginia, Medical School, has been named an assistant surgeon general and is now in charge of the division of hospitals and relief.

University Of Georgia To Have Public Health Department.

A School of Public Health and Hygiene is to be opened in connection with the Medical Department of the University of Georgia, at Augusta.

Dr. Moses C. Sycle,

Of this city, has been appointed by Governor Davis as a member of the Board of Visitors of the Virginia School for the Deaf and Blind, at Staunton, for the unexpired term of four years ending July 1, 1922, to fill the vacancy caused by the resignation of Col. David H. Leake.

Dr. John A. Drake,

Clarksville, Va., was a recent visitor at the home of his sister in this city.

Dr. H. T. Hawkins,

Recently of Meherrin, Va., has located in Kenbridge, Va., where he is associated in practice with Dr. T. C. Harris.

Drs. R. K. Foxwell and K. W. Kinney,

Who located in Washington, D. C., after service in the Medical Reserve Corps, U. S. A., announce removal of their offices to the Medical Science Building, Vermont Avenue and L Street, Northwest. Their practice is limited to neuro-psychiatry.

The Crowell Urological Clinic,

Charlotte, N. C., has purchased the property adjoining the Charlotte Sanatorium, for the purpose of erecting on it a thoroughly modern hospital and clinic building of at least 100 rooms.

St. Elizabeth's Hospital,

Richmond, has been reorganized, and "group medicine" has been established. Dr. J. S. Horsley is head of the Department of General Surgery and Gynecology; Dr. A. I. Dodson is Associate Surgeon and Urologist, Dr. Warren T. Vaughan is head of the Department of Internal Medicine.

Dr. Vaughan is from the faculty of Harvard Medical School and is an associate editor for the Department of Internal Medicine on the "Journal of Laboratory and Clinical Medicine." Dr. Warren Vaughan, who is Dr. Horsley's partner, is a son of Dr. Victor C. Vaughan, who for many years has been dean of the Medical Department of the University of Michigan. Miss Van Dyke and Miss Tholens, both graduates of Wellesley, have charge of dietetics and of the laboratory work in clinical pathology under Dr. Vaughan.

According to the "group" arrangement, the departments of Surgery and Medicine are of equal dignity, and patients will be charged only one fee for all professional services.

Dr. John W. Carroll

And family returned to their home in Lynchburg, Va., in September, after spending their vacation at Atlantic City and in Maine.

Dr. B. B. Bagby

And family, of West Point, Va., went to New York for a visit, the latter part of September.

Married—

Dr. Henry Grant Preston, of Fairmont, W. Va., a graduate of the class of '20, University of Virginia, Medical School, and at present an interne at the University of Virginia Hospital, and Miss Vera Spangler Fritts, of Front Royal, Va., September 25.

Dr. Edwin W. Buckingham, Jr.,

Of Lynchburg, Va., and a graduate of the class of '18, Medical College of Virginia, expects to leave very shortly for missionary work in China.

Fire At North Carolina Hospital.

On the 25th of September, fire completely destroyed the laundry building at the State Hospital for Insane, at Raleigh, causing a loss estimated at $100,000. Besides the building and laundry machinery, the fire consumed a large part of the hospital's bed linen and practically

all the blankets used in the epileptic department.

Dr. Jos. T. McKinney,

Of Roanoke, Va., has recently returned from the Mayo Clinic. While there, he attended the meeting of the American Roentgen Ray Society, which held meetings at Rochester and Minneapolis, Minn.

To Improve The Public Health.

The Fourth Annual Red Cross Roll Call will take place from November 11th to 25th. The main purpose for which the funds will be expended is preservation of the public health and prevention of disease. This campaign is to be carried on by means of a system of Health Centers and Public Health Nurses, who will disseminate thoroughly information of all kinds on health, and will leave no stone unturned in their purpose of aiding the medical profession of the country in its efforts to lower the death rate and decrease disability.

Help the Red Cross in this common aim, by adding your name to the membership list for 1921.

Dr. Thomas G. Hardy

Has bought one of the old homes in Farmville, Va., and reconstructed it into a small hospital for private use.

Dr. Charles A. Pfender,

Washington, D. C., is now located at 1206 Eighteenth Street, Northwest.

Dr. John W. Dillard

Recently returned to his home in Lynchburg, Va., after a visit to Nantucket and Boston.

Dr. and Mrs. R. H. Woolling,

Pulaski, Va., have returned home after an extended motor trip to the Eastern cities and Canada.

O'Reilly Hospital Discontinued.

By direction of Secretary of War Baker, the O'Reilly General Hospital, at Oteen, N. C., was discontinued as an army hospital on October 15 and transferred to the Public Health Service.

Dr. Loren E. Cockrell

And family, of Reedville, Va., recently enjoyed a motor trip through some interesting sections of this State.

Dr. W. A. Brumfield,

Who has been for several years connected with the State Health Department, has accepted the position as medical and physical director of Virginia Polytechnic Institute, Blacksburg. He will be full-time health officer and professor of hygiene, and will conduct a physical examination of all boys entering the college.

Dr. W. F. Henderson will continue as college physician.

The Shenandoah Hospital,

Roanoke, Va., recently opened a new addition, giving it a capacity for 85 patients. It has an obstetrical section, with modern delivery room, nursery and incubator, and is thoroughly up-to-date in all respects. Dr. I. H. Hurt, a graduate of Jefferson Medical College, in the class of '19, is resident physician at this hospital and is also associated in practice with his uncle, Dr. I. E. Huff.

Medical Library.

The Roanoke Academy of Medicine is organizing a Medical Library, to be conducted in conjunction with the public library of that city. Funds have been subscribed to maintain a file of the more important journals. This will be supplemented later by a number of new books.

North Atlantic Tuberculosis Conference.

As we go to press, there is a two days' meeting of this Conference being held in this city. More than 200 delegates representing the District of Columbia and seven states, are in attendance. Some of the most eminent specialists of America, in this branch, are among the speakers, and many subjects of great interest are up for discussion. Several social features have been introduced so as to bring the members together and have them get better acquainted.

"Fake" Orange Beverages.

According to Public Health Reports, it has recently come to light that there are a number of "fake" orange beverages marketed, which contain no orange juice and are lacking in the organic acids and vitamines which give medicinal value to the genuine orange juice. They are in most instances only sweetened carbonated water, flavored with a little oil from the peel of the orange and colored to imitate orange juice. Frequently the labels contain

statements, in a more or less inconspicuous place, that the beverage contains no orange juice, but this is not taken in by the unsuspecting purchaser.

In prescribing orange juice for children, it would not be amiss for physicians to recommend to parents that the best way to get the orange juice is to buy the fruit and squeeze out the juice.

The American Public Health Association,

Meeting in San Francisco, last month, elected Dr. Mazyck Ravenel, professor of preventive medicine at University of Missouri, Columbia, Mo., president, and re-elected Mr. A. W. Hedrich, of Boston, secretary.

The American Electrotherapeutic Association,

At its meeting in Atlantic City, in September, elected Dr. Byron Sprague Price, of New York, president, and Dr. A. Bern Hirsh, of New York, secretary.

The Southern Medical Association

This year holds its meeting in Louisville, Ky., the dates being November the 15th to 18th, inclusive. Dr. E. H. Cary, of Dallas, Texas, is president. The program includes papers on such a variety of subjects that something will be found to interest each member. Louisville, always noted for its hospitality, promises an unusually attractive program socially.

Dr. Robert B. Shackelford,

Who recently located at The Plains, Va., after service in the medical reserve corps, has joined the Army with the rank of major in the medical corps, and is at Station Hospital, Camp Lee, Va.

To Care For Soldiers With Tuberculosis.

The Bureau of War Risk Insurance plans to spend a large part of its fund of $46,000,000 in the rehabilitation of men and women who served in the late war and are now disabled on account of tuberculosis. A 1,000-bed sanatorium has recently been opened for soldiers at Johnson City, Tenn., and a 500-bed sanatorium is soon to be opened at Dawson Springs, Ky., but it is estimated that nearly 14,000 beds will be ultimately required. The Bureau wishes to secure utilized buildings that might be rearranged to fit the needs of tuberculous patients, in accordance with the standards of the American Sanatorium Association. If any one knows of such buildings in Virginia, the War Risk Insurance Bureau would like to know of them.

Dr. A. L. Winfield,

Of this city, has moved his offices to 501 West Grace Street.

Hospital For Shell-Shocked Men.

The new government hospital at Perryville, Md., where the U. S. Public Health Service will provide special care and treatment for shell-shocked soldiers, was opened on the second of this month, with the transfer from the temporary hospital at Cape May, N. J., of over 100 patients. At this time, the Service has under treatment over 12,000 discharged soldiers suffering from shell-shock and other mental disorders. Of these, 5,578 are in hospitals operated by the Service, and the remainder have been placed in hospitals where proper care and treatment are provided under contract.

Mother and Child,

A magazine concerned with their health, made its initial appearance in June. It is a bi-monthly and is published by the American Child Hygiene Association, in Baltimore. The articles are interesting and instructive and deal with the treatment and prevention of diseases common to children. An exceedingly interesting article in the October issue is on "The Children of Central Europe." It tells of hordes of homeless children "over there," who wander from home to home and town to town, and of what is being done to help this class and of the still greater need for help in this field.

An Institute on Venereal Disease Control and Social Hygiene

Will be conducted in Washington, D. C., November 22 to December 4, 1920, by the U. S. Public Health Service. Applications for admission will not be accepted after November 15, without special consent of the director. No tuition fee is to be charged, though many of the most prominent specialists will be members of the faculty. Those eligible for admission are officers of State and city boards of health, clinicians, laboratory technicians, nurses, social workers, police matrons, police-women, superintendents of eleemosynary institutions, judges and probation officers of courts of domestic relations and juvenile courts, chiefs of police, medical officers of commercial institutions, urologists, dermatologists, gynecologists, neurologists, psychologists and officers of medical

and sociological organizations. Any other persons applying will be expected to present credentials signed by State or city health officers

Attend Richmond Fair.

Among the doctors who came to Richmond for the State Fair, were Dr. Isaac Peirce, of Tazewell, and Drs. J. H. Ayres and H. D. Lilliston, of Accomac.

Anesthesia Record.

The National Anesthesia Research Society has adopted a uniform chart which has been recommended for use in all hospitals. It has been devised so as to embrace all essential points in the administration of an anesthetic and to leave such a record as will speedily show the surgeon, anesthetist and nurse the history in the case, including the blood pressure, respiration, color of skin, and reaction of the pupils. The Association will print and distribute this chart at cost to all hospitals using it. If interested, write, T. T. Frankenberg, executive secretary, 16 E. Broad Street, Columbus, Ohio.

The Charlotte County Medical Society

Reorganized August the 6th, and elected the following officers: President, Dr. C. W. Tucker, Drakes Branch; vice-president, Dr. Ray A. Moore, Phenix; secretary-treasurer, Dr. William R. Martin, Charlotte C. H.

The Shenandoah County Medical Society

Was reorganized June 30, and Dr. William F. Driver, New Market, was elected president and Dr. F. C. Downey, Edinburg, secretary. Dr. Jerome Braun, of New Market, was elected to membership.

Lunenburg County Medical Society.

Present officers of the Lunenburg County Medical Society are:—President, Dr. Robt. Ozlin, Dundas; vice-president, Dr. H. T. Hawkins, Kenbridge; secretary-treasurer, Dr. Edwin M. Mann, Kenbridge.

The Association of Surgeons of the Chesapeake and Ohio Railway

Met at White Sulphur Springs, W. Va., September 17, with an attendance of 87 medical men from Virginia, West Virginia, Ohio, Kentucky and Indiana. Dr. W. T. Oppenhimer, Richmond, chief surgeon of the road, opened the meeting, and several quite interesting papers were read and discussed. The election of officers was as follows: President, Dr. E. H. Griswold, Peru, Ind.; vice-presidents, Drs. A. S. Brady, Greenup, Ky., Chas. A. Ray, Charleston, W. Va., and H. U. Stephenson, Toano, Va.; secretary-treasurer, G. E. Meanley, Richmond. The following are members on the executive board:—Drs. Jas. I. Rathburn, Russell, Ky., C. C. Coleman, Richmond, Va., J. Ward Mankin, Washington, D. C., C. E. Wamsley, Newport, Ky., R. K. Buford, Hansford, W. Va., and H. L. Carter, Danville, W. Va.

Doctor's Office For Rent.

Two rooms and hall, 3418 East Broad Street, Richmond. Light, heat and water. Has been used for a doctor's office for past two years and is the best location on Church Hill. $20 per month. Garage in rear. Address Richard W. Jones Co., Inc., 116 North 8th Street, this city. (Adv.)

For Sale—

Good home and unopposed busy country practice. Between Richmond and Fredericksburg. Convenient to school, churches and railroad. Collections and climate excellent. Terms reasonable and can be arranged to suit. Good reason for selling. If interested, address "Dr. J.," care this journal. (Adv.)

Obituary Record.

Resolutions on Death of Dr. Lewis C. Bosher.

The Richmond Academy of Medicine and Surgery, at a meeting on September 14, 1920, passed the following resolutions:

The Richmond Academy of Medicine and Surgery learns with deepest sorrow of the death of its honored member and former president, Dr. Lewis Crenshaw Bosher. His career had been one of which the medical profession of the city may be justly proud. He was born in Richmond, received his academic training in Richmond and was a degree man of Richmond College. He graduated from the Medical College of Virginia in Richmond, was ambulance surgeon of the Richmond City Almshouse Hospital, and, after several years spent in hospitals in New York, returned to Richmond to practice, becoming associated with Dr. Frank Cunningham, one of Richmond's most eminent and beloved physicians. He was thus, in a very particular sense, a Richmond doctor.

His merit and ability were soon recognized, and he quickly forged to the head of his profession, and among his clientele were numbered the most substantial and distinguished members of our community.

Notwithstanding his early and continued success, he was never diverted from the scientific and progressive side of medicine. His labors at the Medical College of Virginia in the anatomy halls, in the dispensary, in the lecture halls and clinics, won for him the devotion and admiration of his

students. His presence always commanded respect; he was possessed of an unusually full and ready information on both the scientific and practical side of medicine; his lectures always showed careful preparation, and he occupied a peculiarly elevated position in the estimation of those who learned medicine from him.

He had always been a prominent figure in the medical circles of Richmond. At the Medical College of Virginia he occupied at various times the chairs of anatomy, principles of surgery, surgery and genito-urinary surgery.

He advocated the amalgamation of the two schools and was active in bringing it about. Many of the preliminary meetings were held in his office for a series of nights extending over a rather prolonged period.

In the development of Richmond hospitals he did probably his best work. Years ago he was active in the Old Dominion Hospital; later in the Memorial Hospital, where he became president of the corporation; and, finally he was one of the organizers of Stuart Circle Hospital, of which he was also a president. An interesting and characteristic feature of his hospital connections was the fact that he never sought personal advancement or aggrandizement, but, rather, the elevation and efficiency of the organization as a whole.

His ability was particularly marked in the field of surgery, to which he devoted his greatest attention and to which he owed his reputation; but it has often been said of him that he was the best-rounded physician in Richmond and approached the patient from all sides. He was not only a surgeon of distinction, but, also, a good doctor. His information was always full, particular and accessible; his opinions were practical and his judgment sound.

Not only was his reputation of the highest at home, but, too, it extended throughout the United States, in all the larger cities of which he had personal friends and admirers among the best of the profession. The esteem in which he was held is evidenced by the large number of exclusive national societies of which he was an honored member. He was president of the Southern Surgical Association and also of this Academy.

But as exalted as were the ability and professional standing of Doctor Bosher, it is probably as a man that he will be most revered and honored. An outstanding quality was his modesty. He never sought to put himself forward, and whatever honors were placed upon him were the results of pure merit. He was a hard worker and never shirked the responsibility of any position he held. He carved out his own future, and none of his achievements was the result of luck or of fortuitous circumstances.

He was clean and honest. Nothing else could endure in his presence. It occurred to none to speak ill of him. He was generous. In the establishment of the various enterprises with which he was connected he always gave freely of his means; and many have been the young whom it was his pleasure to help. In all of these things he was a model which the young doctor would do well to follow and the older men to emulate. As a result of such an exalted personal and professional life he had few enemies and all men spoke well of him. In this he was unique. His character stands before us as a monument that will endure. We believe that he has entered into his reward.

Be it resolved, That the foregoing expression of our appreciation of Doctor Lewis C. Bosher be spread upon the minutes of the Academy, that a copy be sent his family, and that it be printed in the Richmond newspapers and in the Virginia Medical Monthly.

(Signed) CHARLES R. ROBINS,
Chairman.
J. FULMER BRIGHT,
JNO. N. UPSHUR,
WM. S. GORDON,
GEORGE ROSS,
Committee.

Dr. Robert Burley Cullers

Died at his home in Bentonville, Va., August 28, from chronic Bright's disease. He was 56 years of age and studied medicine at the College of Physicians and Surgeons, Baltimore, from which he graduated in 1893. He had been for a number of years a member of the Medical Society of Virginia. His wife and several children survive him.

Dr. William Hervey Remine,

Formerly of Washington County, Va., died at Letterman Hospital, San Francisco, Cal., August 13, aged twenty-five years. He studied medicine at Medical College of Virginia, from which he graduated in 1916, and later joined the Medical Society of Virginia through the Bath County Medical Society. He was an officer in the medical reserve corps of the army.

Dr. Robert N. Younger,

Of Pen Hook, Va., died August 5, from cerebral hemorrhage. He was forty years of age and a graduate from the Maryland Medical College, Baltimore, in 1904. Dr. Younger was a member of the Medical Society of Virginia.

Dr. Thomas L. Settle

Died at his home, Paris, Va., August 26, at the age of 84 years. He was graduated in medicine from the Kentucky School of Medicine, Louisville, in 1857.

Dr. Horace C. Robles,

Who for a time made his home in Alexandria and Fredericksburg, Va., and was later health officer of Dougherty County, Georgia, died in a hospital at Albany, Ga., September 14, as a result of an accident. He was 30 years of age and a graduate of the Atlanta Medical College in 1914.

Dr. Elisha Averett Jenkins,

Formerly of Natural Bridge, Va., died at Saranac Lake, N. Y., September 18, at the age of 46 years.